



BANCO INTERAMERICANO DE DESARROLLO
INTER-AMERICAN DEVELOPMENT BANK

BOLETA DE TRANSMISION
ROUTING SLIP

Date
Fecha

07/17/80

A
To

Of. No.
Room No.

Iniciales
Initials

Dr. Owen Hugh Graham

sh

☐ Firma
Signature

☐ Recomendaciones
Recommendation

☐ Favor verme
See me

☐ Aprobación
Approval

☐ Tomar Nota y Archivar
Note & File

☐ Favor llamarme
Call me

☐ Prep. Resp. en Borrador
Prep. Draft Reply

☐ Tomar Nota y Circular
Note & Circulate

☒ Según Conversación
Per Conversation

☐ Prep. Resp. Definitiva
Prep. Final Reply

☐ Tomar Nota y Devolver
Note & Return

☐ Comentarios
Comments

☐ Prep. Resp. para Firma
Prep. Reply for Signature

☐ Tomar Acción
Take Action

de/of _____

OBSERVACIONES
REMARKS

Hope you'll get this
information in time -
before your trip.

De
From

Ext. No.

Of. No.
Room No.

A.A. ARCE

46627

782



**BANCO INTERAMERICANO DE DESARROLLO
INTER-AMERICAN DEVELOPMENT BANK**

A
To _____

Fecha
Date _____

Hora
Time _____

DURANTE SU AUSENCIA/WHILE YOU WERE OUT

Sr.
Mr. _____

Telefono
Phone _____

☐ Desea verlo
Wants to see you

☐ Favor llamar
Please call

☐ Llamó por teléfono
Telephoned

☐ Llamará de nuevo
Will call again

☐ Vino a verlo
Called to see you

☐ Devolvió su llamada
Returned your call

MENSAJE
MESSAGE _____

DEC 22 1967

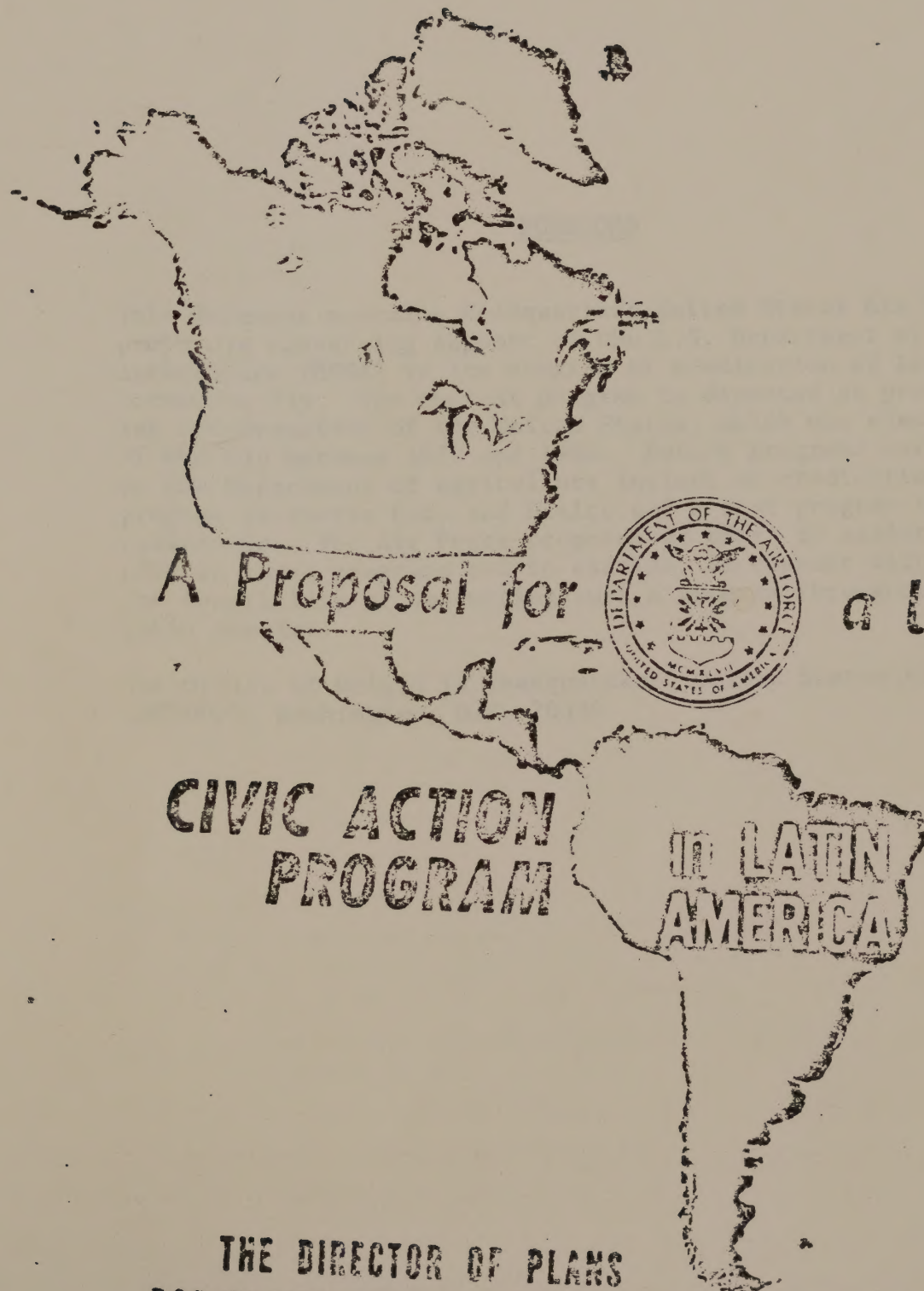
DEPARTMENT OF THE AIR FORCE

**HEADQUARTERS USAF SPECIAL AIR WARFARE CENTER (TAC)
EGLIN AIR FORCE BASE, FLORIDA 32542**

Memo To: **Dr. O.H. GRAHAM**
ENTomology Research Div.
PO Box 232
Kerrville, TEXAS 78028

Thought you might
wish to see these. Can
we be of any help to
you?

Cl Barnes
Staff Veterinarian



A Proposal for



a USAF

**CIVIC ACTION
PROGRAM**

**IN LATIN
AMERICA**

THE DIRECTOR OF PLANS
DCS/PLANS AND OPERATIONS - HEADQUARTERS, USAF

FOREWORD

This document contains Headquarters United States Air Force proposals concerning support of the U.S. Department of Agriculture (USDA) in its program of eradication of the screwworm fly. The current program is directed at preventing reinfestation of the United States, which was cleared of the fly between 1957 and 1966. Future programs envisioned by the Department of Agriculture include an eradication program in Puerto Rico and Mexico and a test program in Baja California. The Air Force proposes to offer to assist the USDA in these programs and to examine, in concert with USDA, the feasibility of conducting such a program throughout Latin America.

The Office of Origin is Headquarters, United States Air Force (AFXPDO), Washington, D.C. 20330

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HQ UNITED STATES AIR FORCE
Washington, D.C. 20330
20 June 1967

A PROPOSAL FOR A U.S. AIR FORCE
CIVIC ACTION PROGRAM IN LATIN AMERICA

1. General.

a. The screwworm fly has infested the tropical and temperate zones of North and South America and caused serious losses to livestock and wild animal life for over 125 years. The infested area extended from South Central Argentina and Chile as far north as Nebraska. The insect causes losses to warm blooded animals by laying eggs in any open wound, no matter how small. The eggs hatch into larvae which eat deeply into the wound. If not detected and treated, the infected animal may die in a few days. Even after treatment the animal may be stunted, make slow weight gains, and be more susceptible to infection. The end result is increased cost of production, reduced income to ranchers and dairymen. In Latin America an additional problem is the simple fact that the result is a loss of an irreplaceable protein resource which is vital to human health.

b. Detection and treatment remained the only remedy to the problem until the late 1930s, when a theory concerning the use of sterile flies was developed. It was based on the fact that the female fly breeds only once in the life cycle. It was therefore theorized that if sterile male flies could be produced and seeded in the infested area for several generations, the fly population would disappear.

c. The theory was of no practical value until 1951 when cobalt-60 sources were developed which provided a practical method of irradiating the larvae to produce sterile flies.

2. The Eradication Program in the United States.

a. The eradication program in the United States was developed and carried out by the U.S. Department of Agriculture. The first area to be attacked was the Southeastern U.S. Sterile flies were produced and distributed in the area by aerial seeding carried out by light aircraft under contract to the Department of Agriculture. The problem was eliminated in the Southeast by 1959.

b. A similar program was launched in the Southwest United States in 1962. This time aerial seeding was conducted by liaison/utility type aircraft assigned to the Department of Agriculture. Sterile flies were produced at a new production

facility at Moore Field, Mission, Texas, which was capable of producing 150 million flies per week. By 1964, the infestation was confined to California, New Mexico, Arizona, and Texas. On 1 May 1965, Arizona and California, the only states still infested were brought into the program and by 1966 the screwworm fly was eliminated from the United States.

c. The total cost of the eradication project in the U.S. was approximately 25 million dollars. It is estimated that the savings to the cattle and dairy industries amount to 120 million dollars annually.

d. See Tab A for a detailed examination of the U.S. program.

3. The U.S. Barrier Program.

a. The elimination of the fly from the United States required a system for insuring against reinfestation from Latin America. To accomplish this task the Department of Agriculture has established a barrier along the U.S./Mexico border extending into Mexico in some depth. In this barrier area sterile flies are continually seeded and ground checks made periodically by agents of the Department of Agriculture and residents of the area to detect evidence of reinfestation. "Hot spots" are then heavily seeded to restrict the spread and to eliminate the source. This program is supported by the sterile fly production plant at Mission, Texas and aircraft assigned to the Department of Agriculture. The cost of the barrier is five million dollars annually and it must be maintained indefinitely unless Mexico is cleared. See Tab A for a detailed examination of the program.

4. A Proposal for a Program in Latin America.

a. The success of the program in the United States has demonstrated that the same combination of science, technology and airpower can be directly and successfully applied to similar programs elsewhere. The logical next step is the extension of the program southward into Latin America. This particular program is particularly susceptible to acceptance by underdeveloped nations because of its relatively low cost and simplicity of operations. Except for the sterile fly production facility, little equipment aside from aircraft and crews is required. Current aerial delivery techniques are within the capability of the Latin American Air Forces.

b. A program in Latin America will have a great impact on its economy. It has been variously estimated that current annual losses attributable to the screwworm fly amount to from one to five billion dollars. Such a program would also benefit the United States because of the fact that once the menace is removed from all Latin America, the costly barrier operation can be abandoned.

c. A Latin American program can be supported as a civic action project through the combined efforts of the U.S. Air Force and the Air Forces of the governments concerned. The Latin American governments possess substantial numbers of aircraft suitable for the project. Training of crews can be accomplished by crews of the Special Air Warfare Center of the U.S. Air Force as a function of its civic action task.

d. Any program of the scope of this would naturally require the support of many U.S. government agencies: Departments of State, Agriculture, and Health, Education and Welfare; the Agency for International Development and the United States Information Agency; support of the program by the Department of Defense would be through the MAP program as well as through the provision of support through the U.S. Air Force.

e. The support and cooperation of the Latin American governments could be obtained through the machinery of the Alliance for Progress or other established procedures.

f. Detailed studies will be required to establish accurate cost factors and time elements associated with a program oriented toward the area of Central and South America. In fact, the U.S. Air Force proposes to examine the feasibility of such a program in conjunction with other government agencies. Additionally, in preparation for such an examination and to develop expertise in aerial seeding and other techniques used in such a program, the Air Force intends, subject to concurrence of the Department of Agriculture, to participate in current and proposed programs of a more limited nature outlined in paragraph 5 below.

g. See Tab B for further examination of the proposed Latin American program.

5. USAF Participation.

a. The Barrier Program.

(1) The Air Force proposes to assist the Department of Agriculture in the current barrier operation by providing one or two aircraft and crews. Crews will rotate each thirty days to provide training to as many crews as possible. These crews will also test delivery techniques to determine if more economical operations are possible (see para 6, Tab A).

b. The Puerto Rico Eradication Program.

(1) The Puerto Rican government has requested that an eradication program be conducted in that island. The U.S. Department of Agriculture is planning such a program although the starting date has not been determined.

(2) The Air Force proposes to assist the Department of Agriculture in that operation by providing one aircraft per week to transport sterile flies from Mission Texas to Puerto Rico and one utility aircraft to conduct aerial seeding operations. It is possible that an additional utility aircraft will be provided to conduct loudspeaker operations in the area to test the effect of such procedures on the populace (see Tab D). The program is expected to be completed in approximately thirty-eight weeks. Air Force participation will provide training to USAF crews in aerial seeding techniques and provide a test of eradication operations in an area geographically removed from fly production facilities.

c. The Mexico Eradication Program.

(1) A Mexico/US survey to determine the feasibility of a screwworm eradication program throughout Mexico has been completed. A favorable report has resulted in a detailed program prepared by the U.S. Department of Agriculture. The project is proposed as an item in the Department's FY 1969 budget. It is estimated that the program will require four years, with the first year devoted to construction of a new production plant in Southern Mexico. Seeding operations will then continue for two years, with the fourth year devoted to assessing results. The two year seeding period may be reduced considerably if techniques currently under study prove successful.

(2) Based on information currently available, it is estimated that the Mexico project will require 37 aircraft of which the Department of Agriculture will provide 20. The remainder may be provided by the Mexican government and the

U.S. Air Force

(3) Once Mexico is declared free of the fly the current (U.S./Mexico border) barrier will be suspended and a new barrier activated in southern Mexico.

(4) As an adjunct to the program in Central Mexico, the Department of Agriculture desires to conduct tests in Baja California. The purpose of these tests would be to gather statistical data based on results of various seeding procedures. These tests cannot be conducted in the current barrier because of the danger that an error might result in wide reinfestation of the U.S. (see Tab C). The results of this test may result in techniques that will reduce the cost and time factors currently accepted.

(5) The Air Force proposes to assist the Department of Agriculture in planning and conducting the program in Mexico and the test project in Baja California. The extent of Air Force participation will be determined during the planning phase and will be based on supplementing the support provided by the other U.S. and Mexican agencies.

6. Conclusions.

a. The success of the U.S. program encourages the initiation of similar programs in Latin America.

b. Such a program would assist the economy of Latin America, strengthen the Alliance for Progress, and employ the resources of the Latin American Air Forces in nation building programs.

c. The concept of military civic action fits ideally within the over-all framework of such a program.

d. The U.S. Air Force has certain skills, capabilities, and resources that could be used to support a Latin American program. Such support is a proper USAF function in carrying out its civic action mission.

e. The Barrier Program and the proposed Puerto Rico, Mexico, and Baja California Programs provide an opportunity for the U.S. Air Force to:

(1) Provide assistance and support to the Department of Agriculture.

(2) Train personnel in seeding techniques.

(3) Assist in developing and testing improved equipment and techniques.

(4) Obtain data useful in determining the feasibility of a Latin American Program.

7. Recommendations.

a. That the U.S. Air Force initiate formal discussions with the U.S. Department of Agriculture and other governmental agencies regarding an examination of the feasibility of an eradication program in Latin America.

b. That the U.S. Air Force participate with the Department of Agriculture (with their concurrence) and other appropriate government agencies in the Eradication Program for Mexico.

c. That the U.S. Air Force, with the concurrence of the Department of Agriculture, participate in conducting operations in support of the current Barrier Program and the proposed Puerto Rican and Baja California Programs.

Tabs:

- A - The Program in the U.S.
- B - Proposal for a Latin American Program
- C - Proposal for a Program in Mexico
- D - Proposal for an Operational Test Program in Puerto Rico

TAB A

THE PROGRAM OF THE UNITED STATES

1. PURPOSE

The purpose of this program is to provide a comprehensive and coordinated effort to address the needs of the Southern United States. This program is designed to provide a comprehensive and coordinated effort to address the needs of the Southern United States. This program is designed to provide a comprehensive and coordinated effort to address the needs of the Southern United States.

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TAB A

THE PROGRAM

IN THE

SOUTHERN UNITED STATES

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2. SCOPE OF THE PROGRAM

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TAB A

THE PROGRAM IN THE SOUTHERN U.S.

1. General.

a. The screwworm, a cause of serious livestock losses for more than 125 years, has been the object of an intensive eradication campaign begun in the southwestern United States in 1962. Annual livestock losses in that area were estimated to range from 25 to 100 million dollars prior to the campaign. Wildlife losses were also known to be great, but no estimates of total losses are available.

b. Infestation by screwworms covered an area along the southern border of the U.S. from California to Florida, and each spring spread from these warm regions to as far north as Colorado and Nebraska (see Enclosure 1). The yearly onset of cold weather eliminated the invasion in the northern states. In the South however, the pest survived the winter, became firmly established, and spread each spring by natural flight at a rate of thirty-five miles per week.

c. Screwworms attack all warm-blooded animals and have, in some instances, afflicted humans. Losses occur as a result of death or from crippling, weight loss, or increased susceptibility to other diseases. An outline of the life cycle and method of attack are contained in Enclosure 6, this Tab.

2. History of the U.S. Eradication Program.

a. The theory of the release of sterile male flies as a method of eradicating screwworms was developed in the late 1930's. It was developed as a result of the infestation of the previously "clean" areas in the southeastern U.S. in 1935. The theory was based on the knowledge that the female fly breeds only once in her life cycle. Therefore, if sterile male flies, which breed often in the same life span, could be produced and seeded in infested areas throughout several cycles, the screwworm population would dwindle generation by generation. Since the life cycle of the fly is three weeks, total elimination could be effected in a relatively short time. In fact, the Island of Curacao in the south Caribbean was totally cleared in 14 weeks.

b. Theory became practice in 1951 when cobalt-60 radiation sources provided a practical means of sterilization. Field tests followed and a program to eliminate the pest from Florida and the southeastern U.S. was conducted between 1957

and 1959. A similar program was established for the Southwest in 1962 and the fly was virtually wiped out in the U.S. by 1966.

3. Methods Used in the U.S.

a. The eradication program in the Southwest centered on a fly breeding plant built at Moore Airfield, Mission, Texas in 1962, using the equipment that had been used at Sebring, Florida during the Southeast campaign. At the Texas plant, a maximum of 150,000,000 sterile flies can be produced weekly (see Enclosure 3). The flies are packaged in cartons and seeded over infested areas by aircraft. Density of seeding varies but averages 800 flies per square mile.

b. Delivery is made from an altitude of from 500 to 1500 feet with 500 feet the optimum. Altitudes above 1500 feet are being considered, but have not been tested to determine the feasibility. The distance between the flight lines of the delivery aircraft vary depending on the nature of the terrain and weather conditions. The cartons are ejected from the aircraft at a maximum air speed of 105K to preclude unacceptable damage to the flies. The cartons are ejected by a motor operated belt fed system which leads to an eight inch opening in the belly or aft section of the fuselage. At the time of ejection the cartons are cut open by blades attached to the system.

c. The aerial seeding of sterile flies in the Southeast was conducted by liaison/utility type aircraft under contract to the Department of Agriculture. The program in the Southwest was conducted by aircraft owned by USDA or on loan by other U.S. government agencies. The fleet consisted of sixteen C-45s, two C-47s, and 1 Piper Commanche. Each aircraft carries about 1,000 cartons, or sufficient flies to seed 500 square miles. C-47 type aircraft can carry up to 4500 cartons.

d. Each area was seeded by aircraft flying flight lines spaced one mile apart. Alternate flight lines were flown each week with each flight line being seeded every fourteen days. For example, flight lines one mile apart are numbered consecutively from 1 to 100. On the first day odd numbered flight lines, 1-15, are flown; on the second day, 17-29, etc. On the first day of the new week, flight lines 2-16 are flown, 18-30 are flown on the second day. The third week finds lines 1-15, 17-29, etc. being repeated.

e. Areas are seeded until thorough ground surveys reveal that all fertile flies have been eliminated. Ground surveys

are conducted by agents of the U.S. Department of Agriculture and by residents of the area who collect flies and send them to USDA laboratories which are capable of differentiating between sterile and fertile flies. This vigilance is continued after complete eradication to detect any possible reinfestation. If reinfestation occurs, it can be localized by reseedling sterile flies. The comparatively high population density, good roads, and excellent communications in the U.S., coupled with the information program of the USDA, make such routine checks of an area relatively simple. Local interest has always been high as is indicated by the fact that individual ranchers, cattlemen, and various private associations in the area, donated 50% of the funds required to establish the fly breeding plant at Mission, Texas.

4. Funding the U.S. Program.

a. The U.S. program was established as a joint effort of the Agricultural Research Service of the USDA and many public and private organizations. The appropriation act contained a provision relating to the use of federal funds in the cooperative programs that "... the ... amount shall not be available for conduct of any screwworm eradication program that does not require minimum matching by state or local sources of at least fifty per centum of the expenses of production, irradiation, and release of the screwworm flies." The cost of the program to date has been \$25,000,000. This investment has produced an estimated savings of \$120,000,000 per year in the U.S. livestock industry.

5. The Barrier.

a. An artificial barrier along the U.S./Mexican border has been maintained to prevent reinfestation of the U.S. This barrier must be maintained indefinitely or until the screwworm fly is eliminated from Mexico, a program which is currently being planned by the U.S. Department of Agriculture (see Tab C).

b. The barrier stretches for three hundred miles along the Mexican border (Enclosure 4) at a cost of five million dollars annually. The barrier program consists of routine seeding of sterile flies along certain areas and spot seeding of "hot" areas discovered by routine ground checks by USDA agents and residents. Once Mexico is free of the fly, the barrier will be moved to the Isthmus of Tehuantepec. This barrier, much shorter than the current barrier, can be maintained at a cost of \$1,000,000 annually.

c. The eradication program in the U.S. and the barrier program being conducted currently have resulted in development of techniques and procedures which can be applied by USAF Special Air Warfare units in similar programs in many areas.

This proposal, in fact, centers on a program to eradicate the fly from Latin America (see Tab B). As a prelude to such a far ranging program, the barrier operation provides an excellent vehicle for training USAF Special Air Warfare crews in such operations.

6. Concept of USAF Support to the Barrier. The Air Force concept, as presently envisioned (and subject to minor alteration as requested by USDA) is as follows:

a. Two C-47s and 2 U-10s of the 1st Air Commando Wing will be modified to permit installation of the carton ejection system. This modification consists of cutting an 8" square hole in the fuselage of the aircraft. No structural members are affected, none of the normal capabilities of the aircraft are reduced, and the aircraft can be returned to its normal configuration in a matter of hours. Initially, USDA ejection systems will be used. If the program that is developed is to be an extremely lengthy one, ejection systems may be constructed by the base shops at Hurlburt Airfield at an estimated cost of two hundred dollars each (see Enclosure 5 for Schematic of dispenser).

b. At least one aircraft and crew, and not more than two, will be maintained at Moore Field for thirty day periods.

(1) If it is desired that two aircraft perform barrier duty simultaneously, one of each type will be used. This will permit heavy maintenance of the remaining modified aircraft of each type at the home station.

(2) If only one USAF aircraft is desired at the barrier during the program each will remain thirty days. The aircraft on barrier duty will be relieved by an aircraft of the different type, i.e., a U-10 will be replaced by a C-47, etc.

(3) In either case, while the same two aircraft of each type will alternate throughout the program, aircrews will not. Each thirty-day period will be performed by a crew not previously trained in the program. In this way, a maximum number of crews can be trained. This Air Force support to the barrier program can be provided from current flying hour programs.

(4) Expense to the Air Force will consist solely of per diem costs. Assuming a crew of two for U-10 and of five personnel for the C-47, annual per diem cost will amount to:

(a) One aircraft on station: \$20,160*.

(b) Two aircraft on station: \$40,320**.

* 2 x 180 days x \$16.00/day + 5 x 180 days x \$16.00/day

** 7 x 360 days x \$16.00 day

c. The Department of Agriculture has indicated an interest in obtaining photo reconnaissance support in certain areas of the barrier. It is suggested that ground teams can check infested areas, determine the density of infestation, atmospheric conditions, etc., at the same time that aerial photography is accomplished. It is hoped that from such tests will be derived a system of estimating density of infestation from study of aerial photographs alone. Such areas as stream beds, areas and types of dense vegetation, etc., can be detected in aerial photos and it is possible that this program will make it possible to predict accurately the density of large areas based on such information. Such estimates would be extremely useful in later programs which will be conducted in remote areas where ground surveys are impossible.

d. Tactical Air Command will be responsible for coordinating USAF support with the U.S. Department of Agriculture and conducting USAF operations in support of the program. Tactical Air Command will also advise USAFSO of the results of such coordination with the U.S. Department of Agriculture and invite participation of crews of the 605th Air Commando Squadron.

e. It might be politic, looking forward to an eradication program in Mexico (see Tab C) to invite the Mexican Air Force to participate in the current barrier program. Such participation would be useful in preparing the Mexican Air Force for the Mexico Eradication Program. Since that program is to be assisted by U.S. forces, use of Mexican Air Forces in the U.S. program would lessen the "Big Brother" image and create an impression of mutual assistance.

f. If such an invitation is contemplated, and approval granted, Hq USAF will enlist the support of the Mexican Air Force through the USAIRA, Mexico.

g. While the U.S. Department of Agriculture is anxious to test new techniques of seeding and to determine optimum dispersion patterns for large uninhabited areas, the current barrier program cannot be used for such purposes. Possible errors inherent in such testing might result in an unacceptable degree of infestation in the U.S. Such tests may be conducted in Baja California under a separate, coordinated Mexican/U.S. program (see Tab C).

h. Command and control of U.S. Air Force aircraft and crews engaged in operations in the barrier program will be as follows:

(1) Aircraft and crews of Tactical Air Command will remain under the command and operational control of Commander,

Tactical Air Command. Their support of the program will be coordinated with the U.S. Department of Agriculture project office.

i. Maintenance support, beyond the capability of the organizational maintenance personnel TDY at Moore Field, or the U.S. Department of Agriculture aircraft support agency, will be provided by mobile maintenance teams of Tactical Air Command.

7. Conclusions.

a. The U.S. Department of Agriculture Eradication Program in the United States has been successful.

b. Similar programs could be initiated elsewhere in the world. Since most developing nations do not have civilian government agencies equipped to conduct aerial seeding, it is likely that any such programs would require the support of indigenous Air Forces as a civic action program.

c. The USAF role and specifically the USAF Special Air Warfare Center role, in civic action, is both to encourage and to assist local Air Forces. In order to perform these functions, USAF personnel must be properly educated and trained.

d. The current U.S. Department of Agriculture barrier program provides a unique opportunity for training U.S. Air Force crews in aerial seeding techniques.

e. Such training can be accomplished with no increase in flying hour allocations and at relatively low cost in per diem funds.

8. Recommendations. It is recommended that:

a. The U.S. Air Force initiate formal discussion with the U.S. Department of Agriculture concerning the Air Force capability to support the barrier program.

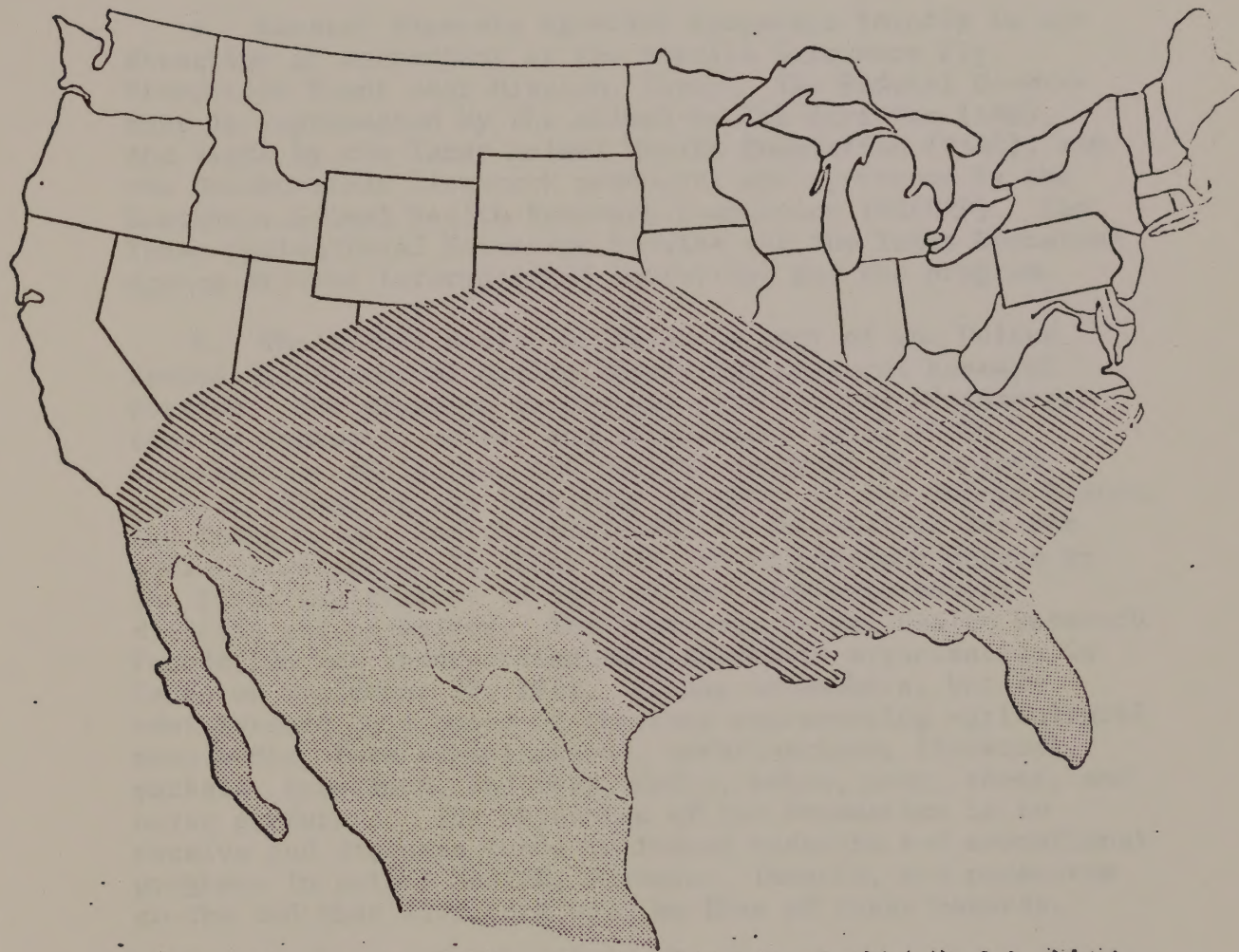
b. With the approval of the U.S. Department of Agriculture, the U.S. Air Force engage in barrier operations as outlined in paragraph 6 above.

6 Enclosures

1. Map - U.S. Infestation
2. Southwest Program
3. Sterile Fly Production
4. Map - The Barrier
5. Schematic - Dispenser
6. Facts about the Screwworm
7. SAWC Aircraft

ENCLOSURE 1
TAB A

SCREW WORM FLY INFESTATION AREA, U.S.
PRIOR TO 1966



OVER WINTERING AREA
SUMMER INFESTATION AREA

ENCLOSURE 2

TAB A

SOUTHWEST SCREWORM ERADICATION PROGRAM

1. Organization.

a. Several separate agencies cooperate jointly in the direction of operations at the Sterile Screwworm Fly Production Plant near Mission, Texas. The Federal Government is represented by the Animal Health Division (ANH), the State by the Texas Animal Health Commission (TAHC), and the Southwestern livestock producers and sportsmen by the Southwest Animal Health Research Foundation (SWAHRF). The Texas Agricultural Extension Service and the Texas Education Agency provide informational activities for the program.

b. The Animal Health Division is part of the United States Department of Agriculture's Agricultural Research Service. The division is charged with Federal Administration of statutes, rules, and regulations involved in cooperative eradication and control programs for animal disease affecting the livestock industry of the United States. The Texas Animal Health Commission is responsible for the administration of all state laws and regulations passed by the State Legislature to control and eradicate animal diseases and parasites. The Southwest Animal Health Research Foundation was incorporated as a nonprofit organization in Texas on September 22, 1961. It has no members, but is administered by a board of trustees representing agricultural news media, farm organizations, veterinarians, livestock markets, sportsmen, and beef, dairy, swine, goat, sheep, and horse producers. The objective of the Foundation is to receive and disburse funds to foster research and educational programs in animal health, diseases, insects, and parasites to the end that livestock will be free of these hazards.

c. Texas A&M University's Agricultural Extension Service has assumed the major responsibility for the educational and informational activities for the program. A concentrated effort is continuously underway to keep the public informed of the operation and latest developments of the eradication program. This is accomplished through close liaison with news media personnel in radio, television, newspapers, and farm magazines, as well as through newsletters, visual aids, and personal contacts by Extension specialists and county agricultural agents.

Enclosure 2

Tab A

Page 1 of 4 pages

2. The Southwest U.S. Program.

a. The program to eradicate the screwworm fly from the southwestern United States through dispersal of flies that have been sexually sterilized with atomic energy has received national and worldwide recognition since its inception on February 14, 1962. Its progress has been observed carefully, as many scientists feel the screwworm eradication program may well be the forerunner of other projects to control or eliminate insects affecting livestock, plants, and man. Unique by all standards, the Southwest Screwworm Eradication Program has been outstanding in that it has been financed jointly through government and producer funds. It has also demonstrated how atomic science and airpower can be utilized for peaceful purposes that can greatly benefit mankind.

b. Initially, the program had a two-fold goal: (1) eradicating screwworms from Texas, New Mexico, Oklahoma, Arkansas, and Louisiana; and (2) establishing and maintaining a barrier zone of live sterile flies along the Mexico-United States border to prevent reinfestation of areas freed from the pest. On May 1, 1965, Arizona and California--the only remaining states infested with screwworms--were brought into the program.

c. In a joint statement issued February 1, 1964, by the agencies cooperating in the program, completion of the first goal was declared. Texas, New Mexico, Arizona, and California continue to experience occasional sporadic outbreaks of screwworms as a result of fertile flies migrating from infested areas in Mexico.

d. The technique being used to eradicate screwworms involves production, sexual sterilization by gamma rays and aerial release of screwworm flies over areas where the insects are a problem. Native, fertile female flies that mate with sterile males lay infertile eggs that are incapable of hatching. Through continuous release, each succeeding generation of native flies is further outnumbered until finally the mathematical odds against a fertile mating occurring are so great that eradication will result.

3. Economic Impact.

a. The screwworm problem has had a major impact on the economy of the Southwest. It was estimated that Southwestern livestock producers suffered losses of up to \$100 million annually because of the damage caused by this pest, prior to the start of the eradication program.

b. Screwworm flies lay their eggs on wounds of warm-blooded animals. The eggs hatch into tiny maggots or larvae which eat deeply into the wound. (The taper of the larva's body and the rings or spines that encircle it somewhat resemble a wood screw, which gives the insect its name.) If not detected and treated, the infested animal may die in a few days. Animals that are treated may be maimed or stunted, make slow weight gains and may be more susceptible to disease. The end result is increased cost of production because of time and money lost treating infestations and reduced income for farmers and ranchers, while the consumer pays the penalty through increased costs of meat, wool, and mohair. Sportsmen find that screwworm infestation often drastically reduces wildlife numbers.

4. The Southwest U.S. Plan.

a. The eradication plan in the Southwest has been to overwhelm the native screwworm fly population through continuous dispersal of sterile flies in the area where they can survive year-round. Outside of this overwintering zone, large numbers of sterile flies have been released in the immediate vicinity where infestations are discovered. Farmers and ranchers are encouraged to collect sample larvae from infested wounds and send them to the eradication headquarters for positive identification. This helps officials determine where sterile flies should be released.

b. To prevent reinfestation from Mexico, where they exist year-round, sterile flies are dispersed in a buffer zone which ranges up to 400 miles in depth along the international border and stretches from the Gulf of Mexico to the Gulf of California. Livestockmen in that country are encouraged to use good management practices on their animals to prevent infestation and are also requested to collect and submit larvae specimens. U.S. and Mexican livestock inspectors constantly survey the buffer zone to insure that sterile flies are dispersed in the necessary areas. This action has been effective in preventing large buildups of screwworms in the eradication area.

5. Fly Production.

a. The screwworm flies are reared and sterilized at the Sterile Screwworm Fly Production Plant near Mission, Texas, on what once was Moore Air Force Base. This plant which operates around the clock, seven days a week, has the capability for producing up to 150 million flies per week (see Enclosure 3, this Tab). The facility was made possible through one of the most intensive voluntary efforts ever

undertaken by livestock producers. In a fund drive conducted by SWAHRF--a nonprofit organization representing the livestock industry and sportsmen of the Southwest--nearly \$4 million was secured through voluntary contributions. This enthusiastic response made it possible to complete the facility much sooner than expected, at a cost much less than anticipated. The plant was dedicated June 16, 1962, with the then vice-president Lyndon B. Johnson as the featured speaker.

6. Funding.

The livestock industry and participating states have been supplying roughly half the funds required to carry out the eradication phase of the plan with the Federal Government furnishing the remainder. Maintenance of the barrier zone along the international border is being financed almost entirely by the Federal Government with the livestock industry and government of Mexico providing some funds, personnel, and resources.

7. History of the Theory.

a. The theory behind the use of sterile flies to eradicate screwworms is neither new nor untested. It came about in the late 1930's when Dr. E.F. Knipling, now director of the Entomology Research Division, who was conducting research on screwworm flies at Menard, Texas, suggested that if a means could be found whereby the laboratory-reared flies could be sexually sterilized, it might be practical to produce and release enough sterile flies to outnumber the native flies.

b. It was not until 1951, when cobalt-60 sources were developed, that a practical sterilizing method was found. Subsequent field tests proved that the technique would work. In 1957-59, the method was utilized to successfully eliminate screwworms from Florida and the southeastern states. A similar program was established for the Southwest with the first flies being reared in February 1962. Temporary facilities at Kerrville, Texas, were used until the plant at Mission was completed in June 1962.

ENCLOSURE 6

TAB A

FACTS ABOUT THE SCREWORM

Screwworms attack all warmblooded animals. Losses may occur as a result of death, or from crippling, weight losses, or increased susceptibility to diseases. Labor that must be provided for animal inspection and treatment, and money spent for materials for prevention or treatment of screwworm injury also represent losses to livestock producers. Game animals, as well as domestic livestock, suffer injury or death from screwworm infestations.

The female screwworm fly lays eggs in batches of about 250 along the edges of open wounds. Within hours the eggs hatch into tiny larvae or maggots that burrow deeply into the wound. At this stage, the larvae are barely visible and are almost impossible to detect in a fly or tick bite, even on close inspection. Only the posterior ends of larvae protrude. Larvae do not crawl over the wound. With their rasping mouthparts, they tear away at the wound and feed on the exudate for 5 to 6 days, growing to about one-half inch in length. An infested wound attracts additional female screwworm flies that lay eggs, and these multiple infestations usually cause death of the host animal, unless treated. Grown steers have been killed within 10 days.

When fully developed, larvae drop from the wound and burrow into the soil to form brown, tough-shelled pupae. After about a week, screwworm flies emerge from the pupal shells. The life cycle of the screwworm averages about 3 weeks, but can be as long as 65 days during cold weather.

ENCLOSURE 7

TAB A

AIRCRAFT ASSIGNED TO THE SANC

The following aircraft types, suitable for aerial distribution operations, are assigned to the Special Air Warfare Center:

C-123s - 48

C-47s - 23

U-10s - 11

PROPOSAL FOR A LATIN AMERICAN PROGRAM

1. General

a. The purpose of the establishment of the program is to provide a comprehensive study of the economic, social, and political conditions of the Latin American countries, and to provide a basis for the development of a program of economic and social cooperation between the United States and the Latin American countries.

b. The purpose of the U.S. Department of Agriculture program is to provide a comprehensive study of the economic, social, and political conditions of the Latin American countries, and to provide a basis for the development of a program of economic and social cooperation between the United States and the Latin American countries.

TAB B

PROPOSAL FOR

A

LATIN AMERICAN PROGRAM

c. The purpose of the program is to provide a comprehensive study of the economic, social, and political conditions of the Latin American countries, and to provide a basis for the development of a program of economic and social cooperation between the United States and the Latin American countries.

d. The purpose of the program is to provide a comprehensive study of the economic, social, and political conditions of the Latin American countries, and to provide a basis for the development of a program of economic and social cooperation between the United States and the Latin American countries.

e. The purpose of the program is to provide a comprehensive study of the economic, social, and political conditions of the Latin American countries, and to provide a basis for the development of a program of economic and social cooperation between the United States and the Latin American countries.

TAB B

PROPOSAL FOR A LATIN AMERICAN PROGRAM

1. General.

a. The successful eradication of the screwworm fly in the United States by the Department of Agriculture has demonstrated a constructive utilization of atomic science and air power that can be directly applied to combating hunger and privation in the emerging nations of the free world. While the screwworm fly infests only the Americas, the same technique is being tested for application against other harmful insects. Coincidentally, these insects infest the same global belt, from 35° north to 35° south latitude, that is considered the primary insurgency threat area.

b. The success of the U.S. Department of Agriculture program in the United States creates an excellent opportunity for exploitation in various programs, including the Alliance for Progress and the U.S. Air Force civic action program. This particular program is uniquely adaptable to acceptance by underdeveloped nations because of the relatively low cost and simplicity of equipment requirement. Except for the production of sterile flies, the only equipment required are aircraft. While ejection systems are currently used, they are inexpensive in themselves and are not an absolute requirement. Aircraft used in the program can be of any type used in utility, liaison or transport functions.

c. By encouraging the air forces of Latin America to join the USAF in a combined Civic Action effort to entirely eradicate the screwworm fly from the Americas we help these air forces contribute to the well-being of their people. Possibly of even greater importance, we establish and demonstrate the effectiveness of truly hemispheric, interagency, inter-country cooperation, that can through alleviation of hunger be a powerful force against the inroads of subversion. The relatively low cost of such a program (compared to the cost of countering insurgency once it has broken out) adds to its attraction as a civic action activity.

d. The U.S. Air Force mission includes the conduct of civic action programs*. The Air Force has certain capabilities

* Military Civic Action - The use of preponderantly indigenous military forces on projects useful to the local population at all levels in such fields as education, training, public works, agriculture, transportation, communication, health, sanitation, and others contributing to economic and social development which would also serve to improve the standing of the military forces with the population. (U.S. forces may at times advise or engage in military civic action in overseas areas.)

and resources that could be applied in conducting an eradication in Latin America in coordination with other U.S. and Latin American government agencies.

e. The damage to the Latin American cattle and dairy industry is variously estimated to be from ~~one billion~~ ^{2.5} billion dollars annually. This in itself makes an eradication program desirable. A second compelling factor is the current necessity for maintaining a barrier between the United States and Latin America (along the U.S./Mexican border) to protect against reinfestation of the U.S. This barrier currently costs five million dollars annually and will be required in some form until all of Latin America is freed of the pest.

2. Planning for a Latin America Program.

a. A program, the object of which is the eradication of the fly from an entire continent, engaging the agencies of twenty-three countries, will be both expensive and complex. It is also presumed that it will be a long term project, both to spread the cost over a number of years and to minimize the complexities.

b. The first step in the program must be the joining of the appropriate U.S. government agencies to develop an estimate of the feasibility of such a project. However, certain activities can be accomplished at low cost while such a study is proceeding.

(1) A program can be carried out in Puerto Rico that will eliminate the problem on that island and at the same time provide training of Department of Agriculture and provide the U.S. Air Force with experience in operating in an area removed from the immediate source of sterile fly production. Such operations would generally be the case in a Latin American program. (This proposal is detailed in Tab D.)

(2) Concurrently with the Puerto Rico program, detailed planning concerning a Mexican program can progress. At the same time examination of the Latin America program should be continued and refined using data gathered from the Puerto Rico test. Planning for the Mexican program should include representatives of the Mexican government as well as appropriate members of U.S. government agencies.

(3) Once plans are finalized and funds are made available, the Mexico program can begin. (Details of the Mexico program are at Tab D.) Concurrently, the feasibility study for the rest of Latin America can be continued, completed, and plans produced.

c. Planning for Latin America will require participation of many U.S. government agencies including:

(1) U.S. Department of Agriculture. This agency possesses the technical knowledge of fly production and distribution vital to the program. It would be responsible for programming, budgeting, and supervising construction of fly production facilities in Mexico and possibly elsewhere. It would provide aircraft to support the program as appropriate.

(2) U.S. Department of State. This agency would coordinate the planning with the various governments concerned, maintain liaison with and coordinate a requirement with the Organization of American States. It would also provide access to the U.S. country teams in-country through the Senior Interdepartmental Group.

(3) U.S. Agency for International Development. This agency would be responsible for much of the funding of the program, arranging for funding by the other countries involved, and providing support through field personnel in-country.

(4) United States Information Agency. This agency would be responsible for assisting the countries concerned in developing information and education programs required to produce support to the program by populace of the country concerned.

(5) U.S. Department of Health, Education and Welfare. This agency should be consulted early in the study phase to determine if similar programs can be coupled with the screw-worm fly project. It is possible that other pests or dangers to health could be eliminated concurrently. It is also possible that this agency can provide field personnel. In any case, data gathered in a program of this scope would undoubtedly be of value to HEW.

(6) U.S. Department of Defense. DOD would participate in the program by the provision of support through the Military Assistance Program. Coordination with Latin American military forces would be accomplished through the U.S. MAAGs/MILGROUPS in Latin America. These agencies would also educate and encourage support of the program by Latin American Air Forces as a civic action program. Training of Latin American Air Forces in the required delivery techniques would be performed by Special Air Warfare forces of the U.S. Air Force. Development of improved delivery techniques would be an Air Force task. Command and control of USAF resources would be exercised by USAFSO.

d. The governments of Latin America should be included in the planning phase as soon as the program is determined to

be feasible. This is not only politic, but necessary to permit planning to progress. Planning cannot be completed until it is determined which nations desire to participate. Anything less than 100% participation may create problems but will not necessarily render the program unworkable. Refusal by certain countries would require that the concept be altered appreciably, e.g., if Brazil demurred, the cost of a barrier along its border might be prohibitive and the program might terminate in Panama. In any event, the degree of U.S. participation in the program would depend upon agreements by participating countries that their funds, personnel and equipment will be provided to support the program.

e. Participation of all the nations of the southern hemisphere could be made more likely if each country's "load" were based on its financial and technical capability rather than on a commitment of a fixed percentage of the cost. A country such as Panama, with no Air Force might make its contribution in terms of fly production plant, funds, personnel, and meat for the plant in return for aerial distribution by aircraft of other participating nations.

3. Concepts.

a. Actual operations to eradicate the screwworm fly from Latin America could be conducted in various ways, of which the following are examples:

(1) The fastest method would be to develop a task force in each country to carry out aerial seeding operations simultaneously. This method would obviously require the largest numbers of aircraft and production facilities.

(a) The program for Mexico, which covers 760,000 square miles, requires 37 aircraft and a fly production plant with a capacity of 300 million flies per week. The remainder of Latin America consists of 7 million square miles. However, until surveys are conducted throughout the continent, it is impossible to forecast the areas which will require seeding and to draw conclusions as to requirements.

(b) The Latin American nations possess an aggregate total of 825 liaison, utility, and transport aircraft. They are currently used by many countries in transport operations to connect remote areas with the population centers of the countries. The concept of civic action is therefore widely understood among the Latin American Air Forces. The numbers of aircraft required and available for the eradication program cannot be determined until the scope of the infestation is determined by the planning group.

(2) A second method would be to use three task forces. One would work south from the Mexican border; one operating from the Canal Zone and working northward and southward; and a third operating in the southern extreme of the infested area working northward (Enclosure 2). Under this system, eradication would be completed much sooner in Central America than in the larger land mass to the south. The northern task force could then be shifted from Mexico to South America to augment those forces.

(3) Probably the most realistically attainable method would be a single task force sweep, starting at the Mexican border. The force would move southward through each country or grouping of smaller countries, until the fly is ultimately exterminated throughout the hemisphere. This method would require at least two task forces; one to maintain the barrier while the other worked southward. After eradication in an area, the barrier force would move southward to establish a new barrier, while the second force continued to sweep towards the south (Enclosure 3). This method offers several advantages.

(a) Annual cost to the U.S. and the Latin American governments in terms of funds, equipment and aircraft would be minimal.

(b) Only agreement in principle would be required from all participating countries before the project could be started. While working in Mexico, detailed arrangements could be completed for Guatemala and British Honduras. When the program moved into these countries, arrangements could be established for Honduras, etc. An added advantage to this procedure is that the demonstrated success in each country would be added incentive to the next country in line.

(c) Improved techniques will be developed for program application as different conditions are encountered. The orderly progression of a single front operation will allow these improved techniques to be incorporated into the program to effect savings in cost, equipment, or time.

(d) Current estimates of economically feasible fly production capabilities are most nearly suited to this approach.

4. Other Considerations.

a. There are many considerations inherent in a program of this magnitude. They can roughly be categorized as political, organizational, technical, and fiscal.

(1) Political. Each country must participate in order to insure complete eradication. Certain of them may, for internal political reasons, not desire to participate in a program dominated by the U.S. It will therefore be politic to enlist the Latin American governments early in the planning stage and, preferably, in the framework of the Alliance for Progress.

(2) Organizational. The number of U.S. government agencies that must be involved in the program for planning, funding, and operational support will require that an inter-agency body be convened with clear lines of responsibility and authority. It is possible that the Senior Interdepartmental Group might provide the guidance and direction with an inter-agency working group established to conduct detailed planning and programming. An inter-American organization must also be established as well as organizations within each country.

(3) Technical. The technical considerations, while many, are amenable to solution as evidenced by the success in the U.S. They encompass such areas as:

(a) Production Plant Site Selection. The sterile fly plant should be sited in an area that is optimum from the standpoint of seeding operations. At the same time, it should have access to assured power sources, large water resources, and food supply and be accessible by road or railroad. It would preferably be located on or in close proximity to an airfield.

(b) Training. Personnel will require training in the various scientific skills related to the operation of the production facility, laboratory testing, and field surveys as well as the aerial seeding operation. This training must be continuous since it is doubtful that the same personnel could be counted on to remain in the program for a program of this duration. Then too, national pride will militate against foreign personnel providing all the technical functions required.

(4) Fiscal. Funding the program will undoubtedly be a complex project. Funding arrangements must be made not only between the many U.S. agencies involved but among the twenty-three nations as well.

(a) On the U.S. side, funding will be required by USAID, U.S. Department of Agriculture, USIA, DOD, and perhaps Health, Education and Welfare. The budgetary aspects must be coordinated prior to submission to Congress and it is vital that Congress approve all the agencies budgetary requirements for the program. Refusal to include funds for one agency would obviously cripple the program. An even more complex problem will be obtaining agreement among the other nations regarding funding, particularly as to the method of determining the fair share of each. If the country in question is large in area but its infestation rate is low, additional problems are likely.

(b) While the problems associated with the program are likely to be many and varied, the technology is obviously available. On that basis, at least, the program is feasible.

5. Conclusions.

a. The success of the screwworm fly eradication program in the United States and the necessity for maintaining a barrier to resist reinfestation make a similar program for all of Latin America desirable.

b. That such a program would be of great economic benefit to Latin America.

c. That the concept of military civic action fits within the over-all framework of such a program and that the program will be a factor in inhibiting the emergence of insurgency in Latin America.

d. A program of such vast scope will present many difficulties but the technological basis for such a program is currently available.

6. Recommendations.

a. It is recommended that the U.S. Air Force:

(1) Initiate open formal discussions with the U.S. Department of Agriculture concerning an eradication program for all of Latin America.

(2) In concert with the U.S. Department of Agriculture, enlist the assistance of the other U.S. government agencies to determine if such a program can be supported.

6 Enclosures

1. Map - Simultaneous Program
2. Map - Three Task Force Concept
3. Map - Two Task Force Concept
4. Latin American Land Areas
5. Latin American Aircraft
6. U.S. Agencies in Latin America

ENCLOSURE 1

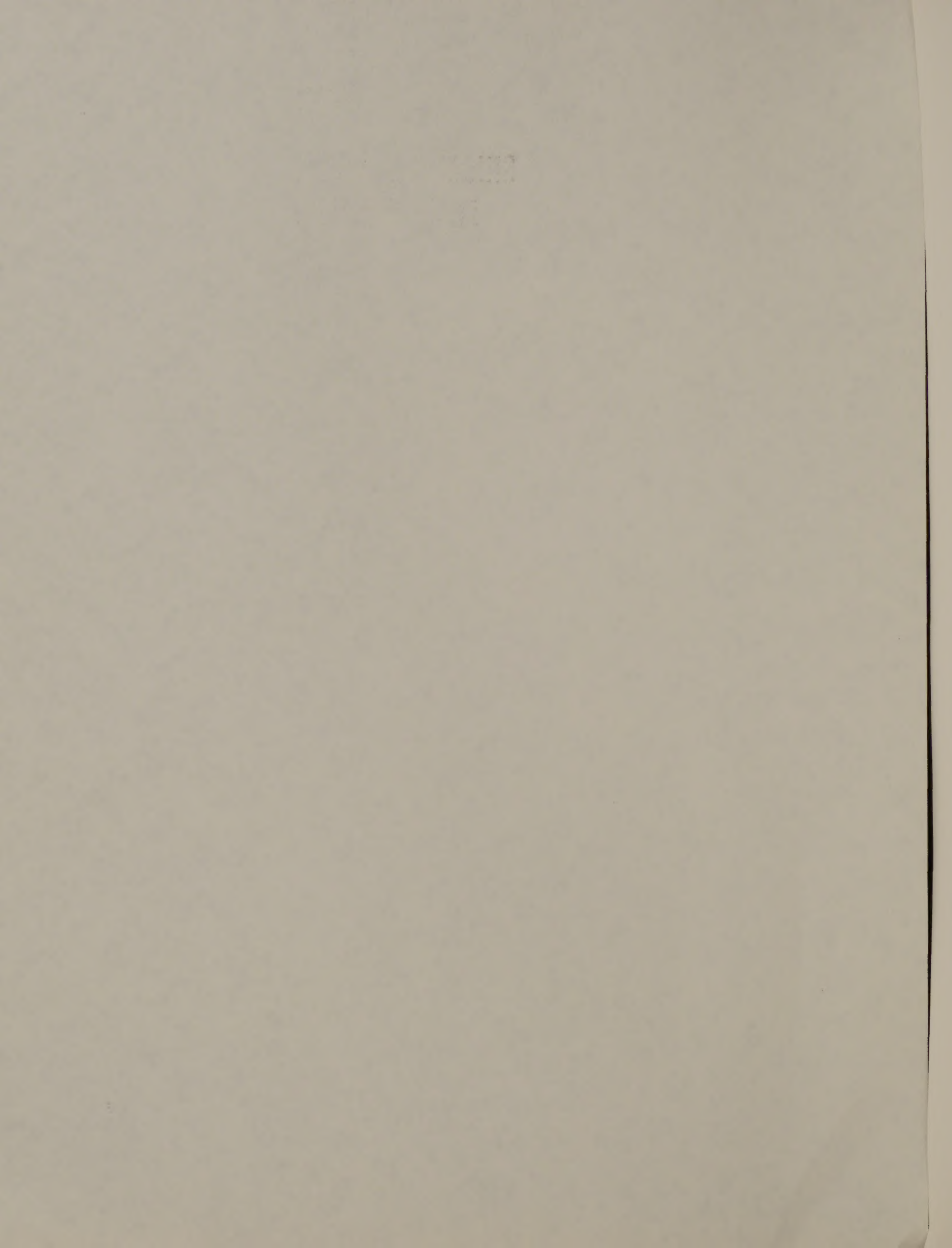
TAB B

SIMULTANEOUS TASK FORCE OPERATIONS IN EACH COUNTRY



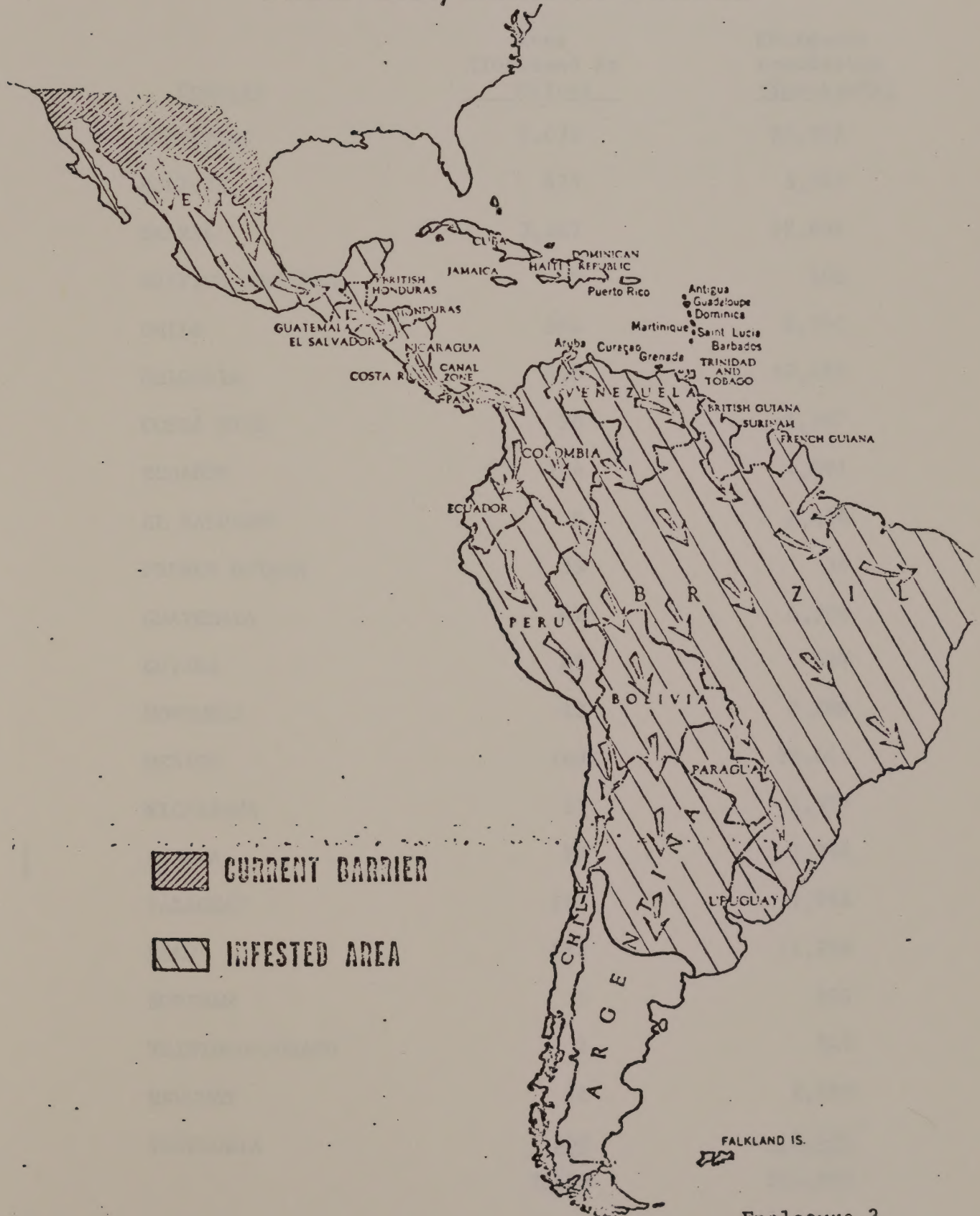
THREE TASK FORCE CONCEPT





ENCLOSURE 3
TAB B

SINGLE TASK FORCE SWEEP SOUTH
FROM U.S./MEXICAN BORDER



ENCLOSURE 4

TAB B

LAND AREAS AND POPULATION

<u>Country</u>	<u>Area (Thousand Sq Miles)</u>	<u>Estimated Population (Thousands)</u>
ARGENTINA	1,072	22,022
BOLIVIA	424	3,647
BRAZIL	3,287	78,809
BRITISH HONDURAS	9	103
CHILE	286	8,391
COLOMBIA	440	17,482
COSTA RICA	20	1,387
ECUADOR	106	4,881
EL SALVADOR	8	2,824
FRENCH GUIANA	35	36
GUATEMALA	42	4,305
GUYANA	85	629
HONDURAS	43	2,209
MEXICO	760	39,643
NICARAGUA	57	1,597
PANAMA	29	1,239
PARAGUAY	157	1,968
PERU	482	11,298
SURINAM	55	324
TRINIDAD-TOBAGO	2	149
URUGUAY	72	2,682
VENEZUELA	<u>352</u>	<u>8,427</u>
	7,823	214,052

ENCLOSURE 5

TAB B

AIRCRAFT ASSIGNED TO LATIN AMERICAN AIR FORCES

The master copy of this Tab contains a list of utility, liaison, and transport aircraft in the inventory of each Latin American country by type and number. It is classified Secret and will be distributed separately if requested.

ENCLOSURE 6

TAB B

U.S. AGENCIES IN-COUNTRY

Page 1 of 2
Tab B
Enclosure 6

	<u>USAIRA</u>	<u>MAAG'S, MISSIONS, MILGPS</u>	<u>USIA</u>	<u>STATE</u>	<u>AID</u>	<u>AGRIC ATTACHE'S</u>
Argentina	Yes	Yes	Yes	Yes	Yes	Yes ¹
Bolivia	Yes	Yes	Yes	Yes	Yes	No
Brazil	Yes	Yes	Yes	Yes	No	Yes
✓ British Honduras	No	No	No	Yes	Yes	No
Chile	Yes	Yes	Yes	Yes	Yes	Yes
Colombia	Yes	Yes	Yes	Yes	Yes	Yes
✓ Costa Rica	No	Yes	Yes	Yes	Yes	Yes ²
Ecuador	Yes	Yes	Yes	Yes	Yes	Yes
✓ El Salvador	No	Yes	Yes	Yes	Yes	Yes ³
French Guiana	No	No	Yes	Yes	No	No

¹Serves Argentina/Paraguay²Serves Costa Rica/Panama³Serves El Salvador/Nicaragua

	<u>USAIRA</u>	<u>MAAG'S MISSIONS, MILGPS</u>	<u>USIA</u>	<u>STATE</u>	<u>AID</u>	<u>AGRIC ATTACHE'S</u>
/ Guatemala	Yes	Yes	Yes	Yes	Yes	Yes ⁴
Guyana	No	No	Yes	Yes	Yes	Yes
/ Honduras	No	Yes	Yes	Yes	Yes	Yes
Mexico	Yes	No	Yes	Yes	Yes	Yes
✓ Nicaragua	No	Yes	Yes	Yes	Yes	Yes
/ Panama	No	Yes	Yes	Yes	Yes	Yes
Paraguay	No	Yes	Yes	Yes	Yes	Yes
Peru	Yes	Yes	Yes	Yes	Yes	Yes
Surinam	No	No	No	Yes	Yes	Yes ⁵
Trinidad-Tobago	No	No	Yes	Yes	Yes	Yes ⁶
Uruguay	Yes	Yes	Yes	Yes	Yes	Yes
Venezuela	Yes	Yes	Yes	Yes	Yes	Yes

⁴Serves Guatemala/Honduras

⁵U.S. Navy Base, Chaguaramas

⁶Serves Trinidad/Surinam/Guyana

TAB C

PROPOSAL FOR A PROGRAM

IN

MEXICO

TAB C

PROPOSAL FOR A PROGRAM IN MEXICO

1. Background.

a. Upon completion of the highly successful Southeastern eradication effort in 1959, local ranchers requested assistance from the U.S. Department of Agriculture in eradicating screwworms from the southwestern United States. An extensive campaign was started and funds raised locally to match Federal funds for this effort. In 1962, the Secretary of Agriculture announced the beginning of the Southwest Cooperative Program. In addition to eradication of the pest from the United States, the program provided for a barrier of sterile flies continually supplied to an area along the entire border between Mexico and the United States (see Map, Enclosure 1, Tab A). The cost of this barrier is currently 5 million dollars annually. In 1966, the United States was declared free from established populations of screwworm flies with occasional sporadic outbreaks in the barrier zone caused by flies migrating from central Mexico. As long as this residual population exists there is a constant danger of U.S. reinfestation. It was therefore decided that a program should be developed to better protect the United States and at the same time decrease the 5 million dollar annual cost of maintaining the present barrier.

2. The U.S. Department of Agriculture Program for Mexico.

a. A cooperative Mexico/U.S. survey to determine the feasibility of a screwworm fly eradication program throughout Mexico has been completed. As a result of a favorable report the detailed program of eradication has been planned by Agriculture. While all facets of this plan are not currently available to the Air Force, several significant facts have emerged concerning this proposal:

(1) The beginning of the eradication program for Mexico is proposed as an item of the FY 1969 U.S. Department of Agriculture budget.

(2) Once the fly was eliminated from Mexico a new barrier would be established at the Isthmus of Tehuantepec in southern Mexico (see Map, Enclosure 1). This barrier would leave approximately 11% of Mexico still infested.

(3) The program, which will take approximately four years, is scheduled as follows:

(a) One year for planning and building a new sterile fly production facility with a maximum production capacity of 300,000,000 flies per week.

(b) Two years for actual eradication operations.

(c) One year for inspection to assure that all flies have been killed north of the barrier.

(4) The new barrier will then be maintained indefinitely. It is estimated that this barrier will cost one million dollars annually.

(5) Total cost of the proposed program in Mexico is estimated at approximately 28 million dollars. This cost includes building an entirely new sterile fly production facility at Tuxtla Gutierrez, Chiapas, Mexico (at cost of 2.2 million dollars). This plant is required because the fly production of the Mission, Texas plant will continue to be used to maintain the barrier along the U.S./Mexican border for at least the first year of operations in Central and South Mexico.

(6) The entire Mexican eradication effort is designed to benefit and protect the U.S. livestock industry. Its cost would be amortized in 11 years on the basis of savings resulting from eliminating the lengthy northern Mexico/U.S. border barrier.

(7) The program was a subject of discussion by the President of the United States and the President of Mexico at the Punta Del Este conference of April 1967.

3. The Baja California Program.

a. As an adjunct to the central Mexico program, the U.S. Department of Agriculture desires to conduct a test program in Baja California. The purpose of this test would be to gather statistical data based on results of aerial seeding from various altitudes, higher release air speeds, various distances between flight lines, and various densities of fly seeding. This data will then permit development of optimum techniques for use in large sparsely inhabited areas. This testing was not done during the U.S. eradication program in the interests of completing the program as rapidly as possible. It cannot be carried out in the current barrier program because any error in that program might result in reinfestation of the U.S. In effect, the method used in the U.S. is one of "overkill." The Baja California tests may result in a capability of complete eradication at less cost.

b. The Baja California test will also serve to expose the problems inherent in the carrying out of such programs in areas with low population density, few roads, and lack of communications. These factors make ground surveys (which are required to measure results on air operations) extremely difficult.

4. Involvement of U.S. Government Agencies.

a. In developing the Mexico and Baja California programs, discussions should be initiated with the various U.S. agencies which would perform functions in the program or which would have an interest as a prelude to the proposed program for all of Latin America. These are:

(1) Department of Agriculture. To coordinate and direct the entire program, provide for fly production and a percentage of aircraft required.

(2) Department of State. Provide coordination with the Government of Mexico through the Country Team.

(3) United States Information Agency. To assist the appropriate Mexican government agency in designing an information program which will induce the populace to support the project, and to conduct ground checks and to publicize the efforts of the Mexican Air Force.

(4) The Department of Health Education and Welfare. To determine if HEW is conducting studies of similar methods of eradicating other injurious pests. It is conceivable that the program might be used to eradicate other pests concurrently with the screwworm program.

(5) United States Agency for International Development. While AID is not active in Mexico, the agency should be apprised of the program and be afforded the opportunity of monitoring it throughout in order to obtain data which will be useful in designing similar programs in other Latin American nations.

(6) United States Air Force. To assist in planning the program and to provide aircraft and crew support to the program. To work with the Mexican Air Force in developing its capabilities if required.

b. The above outline of U.S. agencies is intended to indicate the complexity of the Mexico program and to make clear the necessity for early interagency coordination. It seems reasonable to assume that these agencies will desire to activate an interagency planning group to commence detailed planning of the program at an early date.

5. Air Force Participation in the Mexico Program.

a. The U.S. Air Force possesses capabilities and resources that could be used to support the eradication program in Mexico. These capabilities and resources are outlined at Tab A.

b. The Mexican Air Force (FAM) also possesses aircraft suitable for aerial seeding in substantial numbers. Support by the FAM as a civic action project should be examined as a possible resource. To date, no overtures have been made to the FAM.

c. Department of Agriculture officials have expressed an interest in obtaining support by the U.S. Air Force in the Mexico program provided that the government of Mexico has no objection to such assistance. Approval of USAF participation in the Mexico program might be more easily obtained if prior assistance to the U.S. barrier program by the Mexican Air Force were requested and obtained (see para 6, Tab A). In any case, informal negotiations between the U.S. Department of Agriculture and the government of Mexico have been underway for some time and it is important that the Air Force take no action which might adversely affect the relations between these two agencies.

d. The extent of U.S. Air Force and Mexican Air Force participation in the Mexico program cannot be determined at present. The USAF participation would, however, consist of the provision of aircraft of the 1st Air Commando Wing to supplement the aircraft provided by the U.S. Department of Agriculture and the Mexican Air Force. It is estimated that the fly production plant in Mexico will produce sufficient flies to require seeding of 75,000 miles of flight lines per week. A total force of approximately 37 aircraft will thus be required from U.S. Department of Agriculture, Mexican Air Force, and USAF resources (see Enclosure 2). The number of aircraft required would be reduced if it is determined that maximum production is not required.

e. USAF participation might also include photo reconnaissance of uncharted areas to provide for construction of flight lines or to provide data for infestation density studies. However, the Mexican Air Force has a limited capability for photo reconnaissance and would probably be reluctant to permit entry of USAF reconnaissance aircraft.

f. Barrier flights by USAF aircraft will continue as long as required throughout the program. USAF commitments to the Mexico program will therefore be in addition to aircraft so engaged.

6. Air Force Participation in the Baja California Program.

a. The U.S. Air Force possesses capabilities and resources that could be used in support of the Baja California program.

(1) A C-47 and/or a U-10 of the 1st Air Commando Wing, modified for service on the barrier (see Tab A) could be used in the test program. If USAF aircraft could not be spared from the barrier, an additional C-47 or U-10 of the 1st Air Commando Wing could be made available.

(2) The 1st Combat Applications Group could provide technical assistance and advice concerning development and testing of improved automatic dispensing systems.

(3) Tactical reconnaissance support could be provided to determine distribution patterns and infestation mapping. Use of these systems is contingent upon the willingness of the government of Mexico to permit their use.

(4) If testing of techniques using large high speed aircraft is desired, a C-130 aircraft might be provided for short testing periods dependent on other Air Force tasks of higher priority.

(5) If ground check teams operating in support of the test programs require a mobile communications system, a three-man Air Force communications team equipped with KWM-2A single side band transceiver could be provided with surface transportation to be provided by the appropriate participating agency.

7. Tactical Air Command Responsibilities.

a. For both the Mexico and Baja California programs, Tactical Air Command will be responsible for coordinating with other U.S. government agencies and joint and unilateral planning required.

b. TAC will also be responsible for any training of Mexican Air Force crews involved in the program. Initial coordination with the Mexican Air Force will be initiated through the USAIRA Mexico only after approval by Hq USAF. Training of Mexican

Air Force crews should be conducted by Spanish-speaking USAF personnel. If sufficient numbers of personnel so qualified are not obtainable within TAC, USAFSO may be requested to assist by providing personnel of the 605th Air Commando Squadron.

c. If training of Mexican Air Force personnel is required, logistic and housekeeping support to deployed training teams will be provided or arranged for by TAC.

d. Commander, Tactical Air Command, will submit detailed plans to CSAF for approval before initiating operations in support of these programs.

8. Conclusions.

a. The U.S. Department of Agriculture proposed program for eradication of the screwworm fly in Mexico is feasible and will:

(1) Reduce the cost to the U.S. of maintaining the present barrier.

(2) Provide an excellent test of the feasibility of larger multi-governmental programs elsewhere in Latin America.

b. Assistance to the program by the U.S. Air Force will:

(1) Reduce appreciably the time required to carry out the program and reduce its cost.

(2) Provide the U.S. Air Force an opportunity to enlist the Mexican Air Force in the program as a civic action project, a proper USAF function in support of national policy.

c. Other Latin American nations will undoubtedly respond to a continental scale program more readily as the success of the Mexico program becomes apparent.

9. Recommendations.

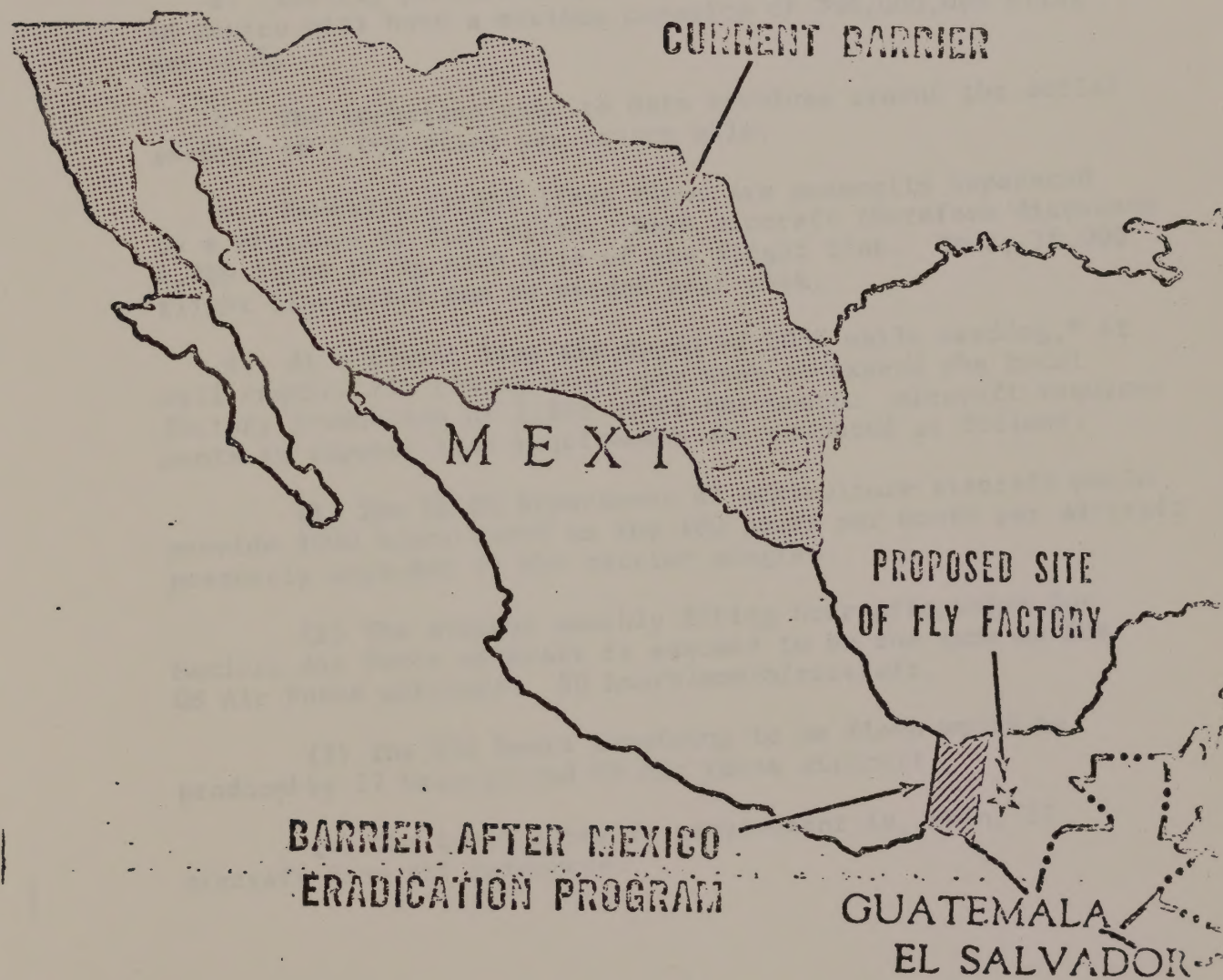
a. It is recommended that the U.S. Air Force:

(1) Initiate formal discussions with the U.S. Department of Agriculture concerning the Eradication Program for Mexico and the Barro Colorado Test Program.

(2) In concert with U.S. Department of Agriculture, enlist the assistance of the other U.S. government agencies in developing an interdepartmental plan.

ENCLOSURE 1
TAB C

BARRIER LOCATIONS



ENCLOSURE 2

TAB C

AIRCRAFT REQUIREMENTS FOR THE MEXICO PROGRAM

1. General.

a. The fly production plant that is proposed for erection in Mexico will have a maximum capacity of 300,000,000 flies per week.

b. The technique used to date revolves around the aerial seeding of 1,000 flies per square mile.

c. Parallel flight lines flown are generally separated by a distance of four miles. Each aircraft therefore dispenses 4,000 flies along each mile of the flight line. Thus, 75,000 flight line miles can be seeded each week.

d. At a flight line air speed of 105K while seeding,* it will require 714 flying hours per week to expend the total factory production or 2,856 hours per month. Aircraft requirements to support that requirement are computed as follows:

(1) The 20 US Department of Agriculture aircraft would provide 2000 hours based on the 100 hours per month per aircraft presently expended in the barrier program.

(2) The average monthly flying hour allocation for Mexican Air Force aircraft is assumed to be the same as for US Air Force aircraft: 50 hours/month/aircraft.

(3) The 856 hours remaining to be flown would be produced by 17 Mexican and US Air Force aircraft.

(4) The total aircraft requirement is, then, 37 aircraft from all resources.

* Maximum air speed allowed to prevent damage to flies.

TAB D

PROPOSAL FOR AN
OPERATIONAL TEST PROGRAM
IN
PUERTO RICO

TAB D

PROPOSAL FOR OPERATIONAL TEST PROGRAM IN PUERTO RICO

1. General.

a. The successful eradication of the screwworm fly in the United States by the Department of Agriculture has demonstrated a constructive utilization of atomic science and air power that can be directly applied to combating hunger and privation in the emerging nations of the free world. While the screwworm fly infests only the Americas, the same technique is being tested for application against other harmful insects. Coincidentally, these insects infest roughly the same belt from 35° north to 35° south latitude that is considered the primary insurgency threat area.

b. Prior to initiation of USAF participation in an eradication program of any great magnitude, an operational test program is mandatory. Training operations along the U.S./Mexico barrier will not provide true factors for evaluation of unilateral USAF capabilities and requirements in areas remote from the fly production facility.

c. The island of Puerto Rico is an ideal area to conduct such an operational test. The entire island along with three very small islands adjacent to the coast have a general infestation of screwworm flies. The climate is similar to southern Florida and supports year round fly propagation. While the damage to the cattle population is only a moderately serious problem, the incidence of infestation in humans causes serious psychological and physiological problems. The Department of Medical Zoology of the University of Puerto Rico has recommended that an eradication program be carried out for health reasons. The Department of Agriculture of Puerto Rico has requested assistance in such a program from the U.S. Department of Agriculture, and is currently attempting to raise their share of the cost of an eradication program for the island.

d. The USAF proposes to offer Special Air Warfare Center personnel and aircraft for participation in a joint effort with the U.S. Department of Agriculture to accomplish this eradication program.

2. Concept of Operations.

a. The U.S. Department of Agriculture screwworm fly production plant at Mission, Texas can support sterile fly production for this effort without detriment to maintenance

of the current Mexico barrier. A limited number of technical personnel for field operations is also available from United States and Puerto Rican Departments of Agriculture resources. The USAF will air transport the flies direct from the Mission, Texas plant to Puerto Rico. This will require one flight per week. Operational tests may dictate the use of a pressurized, temperature controlled aircraft such as the C-130 to reduce mortality in transit. One light utility aircraft (U-10) will be required for fly distribution over Puerto Rico. The U-10 will remain in position, but the aircrew (pilot plus crew chief on flight status to operate fly dispenser) will be rotated monthly on the aircraft that transports the flies from the U.S. The USAF Special Air Warfare Center flight crews will be trained in fly distribution techniques at Mission, Texas prior to deployment to Puerto Rico.

b. Actual eradication is expected to be completed within fourteen to sixteen weeks. Tests of varying flight line separations for fly distribution may extend this period. To insure against re-infestation from residual fly populations in areas that are not accessible to ground check, the U.S. Department of Agriculture recommends continual seeding of the entire island with sterile flies for an additional six months. It is hoped that ground checks during this six month period will provide a better indication than is now available as to the necessity for such "overkill" operations which are costly and, if not required, wasteful.

c. In order to test the feasibility of operations in isolated areas where only minimum or no ground contact with the populace is possible, a loudspeaker equipped U-10 will be utilized. It is possible that aerial seeding operations will take place only one or two days per week, in which case the seeding aircraft can be used to perform speaker flights during the remainder of the week. In any case, provisions for a Spanish-speaking person, to prepare tapes or to make live broadcasts, must be made.

d. The purpose of the loudspeaker operation will be to inform the rural residents of the nature of the operation, to reassure them that the release of large numbers of flies is not harmful, and to instruct them regarding gathering samples and the methods of getting them delivered to the Department of Agriculture laboratory.

e. If an additional U-10 is required for loudspeaker operations it will be required to remain in Puerto Rico throughout the fourteen week seeding operation. Crews, if additional to the seeding crews, will be rotated monthly. During the six month re-seeding/follow-up period, loudspeaker operations will probably be reduced to approximately one week's operation each six weeks.

f. The U-10 aircraft should be based at Ramey AFB in order to minimize maintenance and support problems. If it is desired to test operations from a commercial facility, the aircraft can operate from them for any required test period. Ramey AFB would provide maintenance support if required during these periods.

g. Since USAF participation can be provided within currently programmed flying hour allocations, expense to the Air Force will consist solely of per diem costs which are estimated as follows:

(1) C-130 crew - One flight weekly for 38 weeks to Moore Air Field, Mission, Texas to Ramey AFB to home station. Assuming a maximum period of three days per trip (1 day at \$16.00/day, 2 days at \$9.00/day) and a crew of 6, total cost for the entire period amounts to \$3,677.00.

(2) U-10 seeding aircraft crew. While crews will rotate, a crew will be TDY for the entire 38 week period at a per diem rate of \$9.00/day/man for a total cost of \$4,818.00.

(3) If a second U-10 for loudspeaker operations is required it will require TDY of two crew members for 14 weeks at \$9.00/day/man for a cost of \$1,764.00. During the subsequent six months followup period it is estimated that a two-man U-10 crew will be TDY one week out of each six or four weeks TDY during the period for an additional per diem cost of \$504.00.

(4) The maximum cost of per diem therefore would amount to \$10,758.00.

h. The progress of the project should also receive wide USIS coverage in Latin America. This coverage of a program in a Spanish-speaking territory will be something to which Latin Americans can easily relate. This can be expected to generate interest and a desire for participation when the proposal is presented for a cooperative eradication effort throughout Latin America. If such coverage is to be obtained, it will be necessary to enlist the cooperation of USIA early on the planning phase of the program.

3. Responsibilities.

a. Commander, Tactical Air Command, will be responsible for:

(1) Coordinating with the Department of Agriculture regarding Air Force support to the program and for joint and unilateral planning required.

(2) Providing the aircraft and personnel required to carry out the program.

(3) Coordinating maintenance, housekeeping, logistic, and communications support required at Ramey AFB with CINC Strategic Air Command.

(4) Submit detailed plans to CSAF for approval before initiating operations in support of this program.

b. Commander-in-Chief, Strategic Air Command, will provide required support to TAC aircraft supporting the program.

c. U.S. Department of Agriculture will be responsible for coordinating the program with the appropriate Puerto Rican agencies.

4. Conclusions.

a. That the program for eradication of the screwworm fly in Puerto Rico is desirable and feasible and will:

(1) Provide an excellent test environment, similar to that predominating in Latin America.

(2) Provide a test of the program in an area geographically remote from the source of fly production.

(3) Enhance the image of the U.S. government in Puerto Rico.

b. Assistance to the program by the U.S. Air Force will:

(1) Reduce appreciably the cost of the program envisioned by the Department of Agriculture.

(2) Provide Air Force personnel with an opportunity to conduct aerial seeding operations in an area geographically similar to Latin America and remote from the source of production.

4. Recommendations.

a. It is recommended that the U.S. Air Force:

(1) Initiate formal discussions with the U.S. Department of Agriculture concerning the USAF capability and willingness to support the Puerto Rico program.

(2) Conduct operations as outlined in this Tab when appropriate.

CAPITULO I

POBLACION GANADERA

Entre la información básica que se ha considerado indispensable obtener como parte del diagnóstico de la situación de la salud animal en las Américas, se encuentra la relacionada con la población ganadera, la cual se presenta en este capítulo.

El conocimiento cuantitativo de la población ganadera existe en las Américas permitirá en lo futuro, fundamentar las prioridades que deban de establecerse en el combate de las enfermedades animales en la Región, tomando como base la importancia económica que cada una de las especies representa tanto a niveles locales, regionales, nacionales como en el contexto internacional.

Las especies que se han incluido en el censo de población ganadera, en esta, primera etapa son: Bovinos, Ovinos, Caprinos, Porcinos, Equinos, Camelidos Americanos, (Llama y Alpaca), Bufalos (Bufalo de Agua y Bisonte Americano), Cuyes, Conejos, Caninos, Felinos y Colmenas.

La información sobre población de aves domésticas se ha dejado para la segunda etapa de este estudio.

La información que se presenta en esta primera etapa son cifras globales de población ganadera de las distintas especies de animales domésticos existentes en cada estado, provincia, departamento o parroquia en los distintos países de las Américas. Solo en algunos casos se da la información del total en el país, debido a que no existen datos más detallados sobre la distribución interna de la población animal.

Es necesario mencionar que uno de los mayores problemas a los que se enfrenta la recopilación de información sobre existencias ganaderas en un grupo de países, es la no coincidencia de datos para un mismo año, debido a que no todos los países recabar la información sobre estas existencias al mismo tiempo.

Sin embargo la información que aquí se presenta ha sido proporcionada por los gobiernos de los países, basada en los últimos datos censales.

Obviamente estas cifras no son exactas, pero permiten tener una idea aproximada no sólo de la distribución geográfica de estas especies dentro de cada uno de los países, sino también de la importancia económica que por su número pueden representar en las economías de los países Americanos.

En etapas futuras de este estudio, se pretende obtener información más detallada sobre la distribución geográfica de las especies dentro de los países, así como la composición de la misma en cuanto a sexo, tipo de ganado de acuerdo a su raza o destino de explotación y edad.

GANADO BOVINO

La población de ganado bovino en las Américas reportada por 30 países es de aproximadamente 385 millones de cabezas, siendo los Estados Unidos de América el país que posee el 31.91% del total, seguido por Brasil con 24.02%, Argentina con 14.37%, México 6.52%, Colombia 6.19%, Canada 3.80%, Uruguay 2.69%, Venezuela 2.44%, Paraguay 1.43% y Perú 1.10%.

LAS AMERICAS Censo ganadero

El resto de los países del continente con excepción de Antillas Neerlandesas, Belice, Barbados y Cuba que no reportaron datos, poseen el 5.53% del total reportado.

GANADO OVINO

La población de ganado ovino en las Américas reportada por 24 países es de aproximadamente 122 millones de cabezas, siendo Argentina el país que posee el 28.43% del total, seguido por Brasil con 16.19%, Uruguay con 12.82%, Perú con 11.57%, Estados Unidos de América con 10.41%, Bolivia con 6.65%, Chile con 5.48%, México con 4.36% y Colombia con 1.57%. El resto de los países del continente con excepción de Antillas Neerlandesas, Belice, Costa Rica, Cuba, El Salvador, Nicaragua, Panamá y Suriname que no reportaron datos, poseen el 2.52% del total reportado.

GANADO CAPRINO

La población de ganado caprino en las Américas reportada por 24 países es de aproximadamente 31 millones de cabezas, por 24 países es de aproximadamente 31 millones de cabezas, siendo México el país que posee el 27.14% del total, seguido por Brasil con 20.51%, Argentina con 14.64%, Bolivia con 11.76%, Perú con 7.27%, Venezuela con 4.03%, Estados Unidos con 3.25%, Chile con 2.98%, Haití con 2.87% y Colombia con 2.00%. El resto de los países del continente con excepción de Antillas Neerlandesas, Belice, Costa Rica, Cuba, El Salvador, Nicaragua, Panamá, y Suriname que no reportaron datos, poseen el 3.55% del total reportado.

GANADO PORCINO

La población de ganado porcino en las Américas reportada por 29 países es de aproximadamente 125 millones de cabezas, siendo los Estados Unidos el país que posee el 44.00% del total, seguido por Brasil con 27.31%, México con 9.36%, Canadá con 5.01%, Argentina con 3.29, Perú 1.71% y Colombia 1.45%. El resto de los países del continente con excepción de Antillas Neerlandesas, Belice, Cuba y Suriname, que no reportaron datos, poseen el 7.87% del total reportado.

GANADO EQUINO

La población de ganado equino en las Américas reportada por 27 países es de aproximadamente 38 millones de cabezas, siendo México el país que posee el 27.79% del total, seguido por Brasil con 22.14%, Estados Unidos de América con 15.91%, Argentina con 7.79%, Colombia con 6.54%, Bolivia con 3.46%, Perú con 3.43%, Venezuela con 2.28%, Ecuador con 1.44%, Chile con 1.38%, Uruguay con 1.31%, Haití con 1.16% y República Dominicana con 1.06%. El resto de los países del continente con excepción de Antillas Neerlandesas, Belice, Cuba, Grenada, Jamaica y Suriname que no reportaron datos, poseen el 4.31% del total reportado.

ALPACAS

La población de alpacas en las Américas reportada por 3 países es de aproximadamente 2,827,000 cabezas, siendo Perú el país que posee el 86.46% del total, seguido por Bolivia con el 12.56 y Chile con el .92% del total reportado.

LLAMAS

La población de llamas en las Américas reportada por 3 países es de aproximadamente 3,487,000 cabezas, siendo Bolivia el país que posee el 58.89% del total, seguido por Perú con 39.25% y Chile con 1.86% del total reportado.

BUFALO DE AGUA

La población de Bufalo de Agua en las Américas reportada por 7 países es de aproximadamente 216,000 cabezas, siendo Brasil el país que posee el 93.89% de total, seguido por Trinidad y Tabago con 3.70%, Venezuela con 1.72% y Antillas y Guyana Francesa, Bolivia, Ecuador y Guyana con el .69% restante.

BISONTE AMERICANO

Solamente Canadá reportó la existencia en su territorio de aproximadamente 5,500 cabezas.

CONEJOS

La población de conejos en las Américas, reportada por 8 países es de aproximadamente 1,235,000 animales siendo Brasil el país que posee el 44.03% del total, seguido por Colombia con 23.27%, Estados Unidos con 19.34%, Chile con 9.80%, Uruguay con 1.48% y Guyana, Panamá y Republica Dominicana con el 2.08% del total reportado.

CUYES

La población de cuyes en las Américas, reportada por 3 países es de 21,200,000 animales aproximadamente de los cuales el Perú posee el 99.98%.

CANINOS

Solamente 5 países proporcionaron cifras sobre la población canina, siendo esta de aproximadamente 3,840,000 animales de los cuales el Perú posee el 62.34% del total reportado, seguido por Ecuador con 25.11%, Paraguay con 6.81%, Panamá con 1.56% y Guyana con 1.56%.

FELINOS

Solamente 3 países reportaron cifras sobre la existencia de aproximadamente 413,000 felinos. De esta cifra Ecuador reportó el 78.24%, Panamá el 19.34%, Guyana el 2.42% del total.

COLMENAS

La población de colmenas reportada en América por 10 países es de aproximadamente 6 millones de unidades de las cuales los Estados Unidos de América poseen el 72.23% del total reportado seguido por Argentina 14.24%, Chile con 6.99%, Republica Dominicana con 2.36%, Uruguay con 1.93%, Colombia con 1.38% y Ecuador, Guatemala, Guyana y Panamá con el .87% del total reportado.

POBLACION BOVINA EN LAS AMERICAS
LUGAR, PORCENTAJE Y AÑO DEL CENSO POR PAISES

LUGAR	PAIS	GANADO BOVINO	% DEL TOTAL REPORTADO	AÑO DEL CENSO
1°	ESTADOS UNIDOS	122,896,000	31.91%	1977
2°	BRASIL	92,495,364	24.02%	1974
3°	ARGENTINA	55,354,669	14.37%	1974
4°	MEXICO	25,123,756	6.52%	1970
5°	COLOMBIA	23,858,508	6.19%	1976
6°	CANADA	14,668,000	3.80%	1977
7°	URUGUAY	10,383,773	2.69%	1976
8°	VENEZUELA	9,409,443	2.44%	1975
9°	PARAGUAY	5,537,200	1.43%	1976
10°	PERU	4,251,800	1.10%	1978
11°	CHILE	3,417,003	5.53%	1965
12°	NICARAGUA	2,864,198		1971
13°	ECUADOR	2,446,055		1974
14°	BOLIVIA	2,406,941		1973
15°	GUATEMALA	1,712,851		1975
16°	HONDURAS	1,685,487		1974
17°	REPUBLICA DOMINICANA	1,471,967		1971
18°	PANAMA	1,358,360		1978
19°	COSTA RICA	1,346,222		1973
20°	EL SALVADOR	960,774		1971
21°	HAITI	700,000		1950
22°	JAMAICA	278,710		1969
23°	GUYANA	200,000		1973
24°	TRINIDAD Y TABAGO	75,000		
25°	INDIAS OCCIDENTALES	66,441	5.53%	1978
26°	SURINAME	26,000		
27°	BARBADOS	7,082		1971
28°	GRENADA	6,000		1978
29°	BAHAMAS	3,400		1970
30°	ANTILLAS Y GUYANA FRANCESA	2,700		
	TOTAL	385,013,704	100.00%	

POBLACION OVINA EN LAS AMERICAS
LUGAR, PORCENTAJE Y AÑO DEL CENSO POR PAISES

LUGAR	PAIS	GANADO OVINO	% DEL TOTAL REPORTADO	AÑO DEL CENSO
1°	ARGENTINA	34,691,426	28.43%	1974
2°	BRASIL	19,760,643	16.19%	1974
3°	URUGUAY	15,647,170	12.82%	1976
4°	PERU	14,117,600	11.57%	1978
5°	ESTADOS UNIDOS	12,710,000	10.41%	1977
6°	BOLIVIA	8,112,932	6.65%	1973
7°	CHILE	6,690,280	5.48%	1965
8°	MEXICO	5,320,070	4.36%	1970
9°	COLOMBIA	1,920,770	1.57%	1976
10°	ECUADOR	1,096,640		1974
11°	GUATEMALA	667,766		1975
12°	CANADA	532,500		1977
13°	PARAGUAY	370,400		1976
14°	VENEZUELA	90,035		1975
15°	GUYANA	62,000		
16°	HAITI	50,000		1950
17°	INDIAS OCCIDENTALES	41,346	2.52%	
18°	BARBADOS	27,054		1971
19°	REPUBLICA DOMINICANA	25,565		1971
20°	BAHAMAS	23,100		1970
21°	TRINIDAD Y TABAGO	12,000		1973
22°	GRENADA	9,000		1978
	JAMAICA	9,000		1969
23°	ANTILLAS Y GUYANA FRANCESA	435		
24°	EL SALVADOR	112		1971
	TOTAL	121,990,707	100.00%	

POBLACION CAPRINA EN LAS AMERICAS
LUGAR, PORCENTAJE Y AÑO DEL CENSO POR PAISES

LUGAR	PAIS	GANADO CAPRINO	% DEL TOTAL REPORTADO	AÑO DEL CENSO
1°	MEXICO	8,487,822	27.14%	1970
2°	BRASIL	6,416,962	20.51%	1974
3°	ARGENTINA	4,580,263	14.64%	1974
4°	BOLIVIA	3,680,848	11.76%	1973
5°	PERU	2,276,154	7.27%	1978
6°	VENEZUELA	1,262,300	4.03%	1975
7°	ESTADOS UNIDOS	1,019,481	3.25%	1977
8°	CHILE	933,007	2.98%	1965
9°	HAITI	900,000	2.87%	1950
10°	COLOMBIA	626,071	2.00%	1976
11°	JAMAICA	263,000	3.55%	1969
12°	REPUBLICA DOMINICANA	259,758		1971
13°	ECUADOR	221,354		1974
14°	PARAGUAY	108,300		1976
15°	INDIAS OCCIDENTALES	61,906		1975
16°	GUATEMALA	53,576		
17°	TRINIDAD Y TABAGO	35,000		1973
18°	CANADA	25,000		1977
19°	GUYANA	20,000		1974
20°	HONDURAS	16,938		
21°	BAHAMAS	14,100		1970
22°	GRENADA	5,500		1978
23°	BARBADOS	5,436		1971
24°	ANTILLAS Y GUYANA FRANCESA	368		
	TOTAL	31,273,146	100.00%	

POBLACION PORCINA EN LAS AMERICAS
LUGAR, PORCENTAJE Y AÑO DEL CENSO POR PAISES

LUGAR	PAIS	GANADO PORCINO	% DEL TOTAL REPORTADO	AÑO DEL CENSO
1°	ESTADOS UNIDOS	55,084,800	44.00%	1977
2°	BRASIL	34,192,028	27.31%	1974
3°	MEXICO	11,720,843	9.36%	1970
4°	CANADA	6,279,000	5.01%	1977
5°	ARGENTINA	4,126,742	3.29%	1974
6°	PERU	2,141,600	1.71%	1978
7°	COLOMBIA	1,827,374	1.45%	1976
8°	BOLIVIA	1,188,000		1978
9°	ECUADOR	1,127,745		1974
10°	VENEZUELA	1,117,215		1975
11°	PARAGUAY	1,102,000		1976
12°	HAITI	1,100,000		1950
13°	CHILE	1,021,594		1965
14°	REPUBLICA DOMINICANA	730,218		1971
15°	GUATEMALA	659,031		1975
16°	HONDURAS	511,124		1974
17°	COSTA RICA	246,802		1973
18°	URUGUAY	226,265	7.87%	1976
19°	NICARAGUA	207,059		1971
20°	PANAMA	179,000		1978
21°	GUYANA	80,000		
22°	JAMAICA	66,013		1969
23°	INDIAS OCCIDENTALES	55,207		
24°	TRINIDAD Y TABAGO	48,000		1973
25°	BARBADOS	27,515		1971
26°	ANTILLAS Y GUYANA FRANCESA	12,000		1969
27°	EL SALVADOR	11,160		1971
28°	BAHAMAS	11,000		1970
29°	GRENADA	10,000		1978
	TOTAL	125,179,335	100.00%	

POBLACION EQUINA EN LAS AMERICAS
LUGAR, PORCENTAJE Y AÑO DEL CENSO POR PAISES

LUGAR	PAIS	GANADO EQUINO	% DEL TOTAL REPORTADO	AÑO DEL CENSO
1°	MEXICO	10,720,699	27.79%	1970
2°	BRASIL	8,539,784	22.14%	1974
3°	ESTADOS UNIDOS	6,137,000	15.19%	1977
4°	ARGENTINA	3,005,240	7.79%	1974
5°	COLOMBIA	2,526,052	6.54%	1976
6°	BOLIVIA	1,334,665	3.46%	1973
7°	PERU	1,326,350	3.43%	1978
8°	VENEZUELA	882,699	2.28%	1975
9°	ECUADOR	556,404	1.44%	1974
10°	CHILE	536,051	1.38%	1965
11°	URUGUAY	507,948	1.31%	1976
12°	HAITI	450,000	1.16%	1950
13°	REPUBLICA DOMINICANA	412,145	1.06%	1971
14°	CANADA	349,000	4.31%	1977
15°	PARAGUAY	325,400		1976
16°	HONDURAS	264,753		1974
17°	GUATEMALA	165,174		1975
18°	NICARAGUA	149,446		1971
19°	PANAMA	130,019		1978
20°	COSTA RICA	106,576		1973
21°	EL SALVADOR	104,674		1971
22°	GUYANA	22,500		
23°	TRINIDAD Y TABAGO	13,455		1973
24°	BAHAMAS	4,000		1970
25°	BARBADOS	952		1971
26°	INDIAS OCCIDENTALES	298		
27°	ANTILLAS Y GUYANA FRANCESA	96		1969
	TOTAL	38,571,380	100.00%	

CENSO GANADERO DE LAS AMERICAS

PAISES	BOVINOS	OVINOS	CAPRINOS
ANTILLAS Y GUAYANA FRANCESA	2,700	435	368
ANTILLAS NEERLANDESAS			
ARGENTINA	55,354,669	34,691,426	4,580,263
BAHAMAS	3,400	23,100	14,100
BARBADOS	7,082	27,054	5,436
BELICE			
BOLIVIA	2,406,941	8,112,932	3,680,848
BRASIL	92,495,364	19,760,643	6,416,964
CANADA	14,668,000	532,500	25,000
COLOMBIA	23,858,508	1,920,770	626,071
- COSTA RICA	1,346,222	-	-
CUBA			
CHILE	3,417,003	6,690,280	933,007
ECUADOR	2,446,055	1,096,640	221,354
- EL SALVADOR	960,774	112	-
ESTADOS UNIDOS	122,896,000	12,710,000	1,019,481
GRENADA	6,000	9,000	5,500
- GUATEMALA	1,712,851	667,766	53,576
GUYANA	200,000	62,000	20,000
HAITI	700,000	50,000	900,000
- HONDURAS	1,685,487	2,863	16,938
INDIAS OCCIDENTALES	66,441	41,346	61,906
JAMAICA	278,710	9,000	263,000
MEXICO	25,123,756	5,320,070	8,487,822
- NICARAGUA	2,864,198	-	-
- PANAMA	1,358,360	-	-
PARAGUAY	5,537,200	370,400	108,300
PERU	4,251,800	14,117,600	2,276,154
REPUBLICA DOMINICANA	1,471,967	25,565	259,758
SURINAME	26,000	-	-
TRINIDAD Y TABAGO	75,000	12,000	35,000
URUGUAY	10,383,773	15,647,170	-
VENEZUELA	9,409,443	90,035	1,262,300
TOTAL	385,013,704	121,990,707	31,273,146

CENSO GANADERO DE LAS AMERICAS

PAISES	PORCINOS	EQUINOS
ANTILLAS Y GUAYANA FRANCESA	12,000	96
ANTILLAS NEERLANDESAS		
ARGENTINA	4,126,742	3,005,240
BAHAMAS	11,000	4,000
BARBADOS	27,515	952
BELICE		
BOLIVIA	1,188,000	1,334,665
BRASIL	34,192,028	8,539,784
CANADA	6,279,000	349,000
COLOMBIA	1,897,374	2,526,052
COSTA RICA	246,802	106,576
CUBA		
CHILE	1,021,594	536,051
ECUADOR	1,127,745	556,404
EL SALVADOR	11,160	104,674
ESTADOS UNIDOS	55,084,800	6,137,000
GRENADA	10,000	-
GUATEMALA	659,031	165,174
GUYANA	80,000	22,500
HAITI	1,100,000	450,000
HONDURAS	511,124	264,753
INDIAS OCCIDENTALES	55,207	298
JAMAICA	66,013	-
MEXICO	11,720,843	10,720,699
NICARAGUA	207,059	149,446
PANAMA	179,000	130,019
PARAGUAY	1,102,000	325,400
PERU	2,141,600	1,326,350
REPUBLICA DOMINICANA	730,218	412,145
SURINAME	-	-
TRINIDAD Y TABAGO	48,000	13,455
URUGUAY	226,265	507,948
VENEZUELA	1,117,215	882,699
TOTAL	125,179,335	38,571,380

En los cuadros anteriores fué mostrada la población bovina, ovina, caprina, porcina y equina de los países de América que proporcionaron esa información, habiéndolos ordenado en orden descendente, empezando por los países que tienen un mayor porcentaje de la población de cada especie de acuerdo al total reportado por los diferentes países.

A continuación se muestran los cuadros de censos de animales proporcionados por los diferentes países donde se incluyen, a demás de las cinco especies analizadas en los cuadros anteriores, la información censal de Alpacas, Llamas, Búfalos de Agua Bisonte Americano, Conejos, Cuyes, Caninos, Felinos y Colmenas.

En los mismos se puede apreciar en forma global la población de las especies mencionadas que permiten tener una visión de conjunto de las cifras absolutas reportadas por los países.

Se han incluido los datos proporcionados por 5 países sobre su población de caninos y de 3 países sobre su población de felinos por considerar que los mismos son importantes para actividades de salud pública veterinaria. De requerirse información de esas especies en países que no reportaron esas cifras, las mismas pueden ser estimadas en base a la población humana urbana y rural.

CENSO DE ANIMALES EN LAS AMERICAS

[illegible]

CENSO DE ANIMALES EN LAS AMERICAS

PAIS	CONEJOS	CUYES	CANINOS	FELINOS	COLMENAS
ANTILLAS Y GUAYANA FRANCESA ANTILLAS NEERLANDESAS ARGENTINA BAHAMAS BARBADOS BELICE BOLIVIA BRASIL CANADA COLOMBIA COSTA RICA CUBA CHILE ECUADOR EL SALVADOR ESTADOS UNIDOS GRENADA GUATEMALA GUYANA HAITI HONDURAS INDIAS OCCIDENTALES JAMAICA MEXICO NICARAGUA PANAMA PARAGUAY PERU REPUBLICA DOMINICANA SURINAME TRINIDAD Y TABAGO URUGUAY VENEZUELA	 543,913 287,535 121,067 238,974 5,000 10,000 10,468 18,311	 2,000 2,000 21,277,900	 965,110 60,000 160,000 262,000 2,395,668	 323,635 10,000 80,000	 850,000 417,551 20,000 4,311,000 19,314 1,000 10,000 141,294 115,358
TOTAL	1,235,268	21,281,900	3,842,778	413,635	5,968,124

En base a la información proporcionada por los países se ha representado en mapas del hemisferio la población de bovinos, ovinos, caprinos, porcinos, equinos y colmenas.

Es conveniente hacer notar que la información recopilada de los países fué en base a su población de animales a nivel estatal, departamental o provincial, según las diferentes divisiones políticas, por lo que, su presentación en los mapas mediante puntos no representa necesariamente que donde se ha colocado un punto sea el lugar donde se encuentra ubicada la totalidad de animales representada por ese símbolo.

En una etapa posterior de este estudio se podrá contar con información a nivel municipal, cantonal, o de alguna otra división política más simplificada que permita una ilustración más exacta. No obstante, con la información disponible se puede obtener una apreciación de conjunto que permite tener una idea clara sobre las mayores concentraciones de animales de las diferentes especies en los países del hemisferio.

En el mapa No. 1 se representa la distribución de la población bovina donde se ha simbolizado con un punto cada 100,000 bovinos. En aquellos casos de estados, departamentos o provincias que reportaron cantidades menores de 100,000 pero mayores de 50,000 bovinos también fueron representados por un punto.

Como se puede apreciar, de norte a sur, en Canadá la mayor concentración de ganado bovino se observa en el sur de ese país, mientras que en los Estados Unidos se observa en la parte central norte y central sur de ese país.

En México se puede apreciar una concentración de bovinos ligeramente mayor en la zona oriental y sur de ese país. En Centroamérica se observa la mayor concentración bovina en la zona del Océano Pacífico mientras que en Sudamérica la mayor concentración de ganado bovino se observa hacia el norte de Colombia y noroeste de Venezuela, costa y sur de Brasil, Uruguay y oeste de Argentina.

Es interesante observar la limitada población de ganado bovino en el norte de Canadá, la zona amazónica del Brasil, norte de Chile y sur de Argentina.

En el mapa No. 2 se representa la distribución de la población ovina, donde ha sido simbolizado con un punto cada 25,000 ovinos. En los casos de estados, departamentos o provincias que reportaron cantidades menores de 25,000 pero mayores de 12,500 ovinos fueron representados asimismo por un punto.

Como se puede apreciar, en Norteamérica y Centroamérica, no existen regiones con grandes concentraciones de ganado ovino.

En Sudamérica, pueden observarse las concentraciones mayores de ovinos en el sur de Brasil, Uruguay y la zona de la costa y sur de Argentina, así como en la región central y sur del Perú y suroeste de Bolivia.

En el mapa No. 3 se representa la distribución de la población caprina donde se ha simbolizado con un punto cada 20,000 caprinos. En los casos de estados, departamentos o provincias que reportaron cantidades menores de 20,000 pero mayores de 10,000 caprinos, también fueron representados por un punto.

En Norteamérica es interesante observar que prácticamente en Canadá y Estados Unidos la concentración de ganado caprino es mínimo, siendo el Estado de Texas de este último país donde existe una concentración ligeramente mayor.

En México la población caprina se circunscribe a la región central y nororiental mientras que en Centroamérica es muy escasa la producción de caprinos.

En los países del Caribe la mayor concentración de ganado caprino se observa en Haití. En Sudamérica se aprecian zonas importantes de producción de caprinos al Oriente del Brasil, Norte y Costa del Perú, sur de Bolivia y zona occidental de Argentina.

En el mapa No. 4 se representa la distribución de la población porcina donde se ha simbolizado con un punto cada 50,000 porcinos. En los casos de estados, departamentos ó provincias que reportaran cantidades menores de 50,000 pero mayores de 25,000 porcinos también fueron representados por un punto.

En Norteamérica la mayor concentración de ganado porcino se observa hacia el Sur de Canadá, región del cinturón del maíz en los Estados Unidos y zona central de México.

En Centroamérica, no se observan zonas con grandes concentraciones de población porcina siendo interesante destacar que de los países del Caribe, Haití y República Dominicana son en los que se observa una mayor concentración de porcinos.

En Sudamérica la mayor concentración de población porcina se aprecia en la costa y sur del Brasil. En el resto de los países no se observan regiones importantes para la producción de esa especie.

En el mapa No. 5 se representa la distribución de la población equina donde se ha simbolizado con un punto cada 25,000 equinos. En aquellos casos de estados, departamentos ó provincias que reportaran cantidades menores de 25,000 pero mayores de 12,500 equinos, también fueron representados por un punto.

En Canadá la población equina es muy reducida y en los Estados Unidos se encuentra distribuida proporcionalmente en todo el país. En México se observa una concentración mayor de equinos en la región central de ese país.

Entre los países del Caribe es en Haití donde se observa una concentración mayor de equinos. En Sudamérica las mayores concentraciones de equinos se observan en la zona de la costa de Brasil, Noreste de Argentina, Norte de Colombia y Venezuela y región de la costa de Ecuador y Perú así como sur de Bolivia.

En el mapa No. 6 se representa la distribución de la población de colmenas en los 10 países que proporcionaron esa información, habiéndose simbolizado con un punto cada 10,000 colmenas. En aquellos casos de estados, departamentos ó provincias que reportaron cantidades menores de 10,000 pero mayores de 5,000 colmenas también se han representado por un punto.

En Norteamérica puede observarse que en los Estados Unidos tiene zonas importantes de producción de colmenas en las costas del pacífico y del atlántico de ese país.

En Centroamérica se observa cierta producción mayor de colmenas en el sur de Nicaragua mientras que en Sudamérica la mayor concentración se aprecia en el sur de Chile y oriente de Argentina.

The first of these is the fact that the majority of the specimens of the fossil are found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

The second of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

The third of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

The fourth of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

The fifth of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

The sixth of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

The seventh of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

The eighth of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

The ninth of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

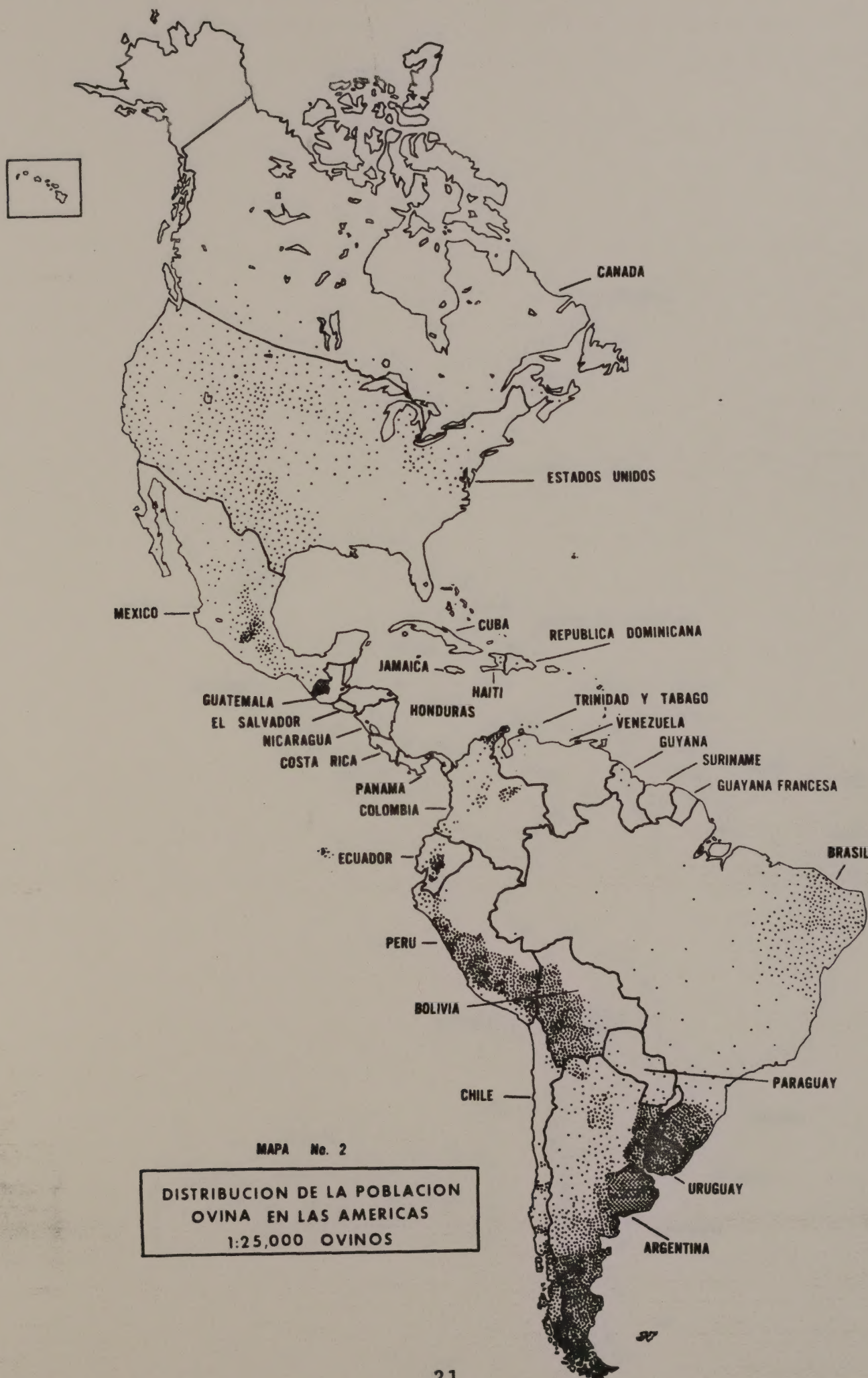
The tenth of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

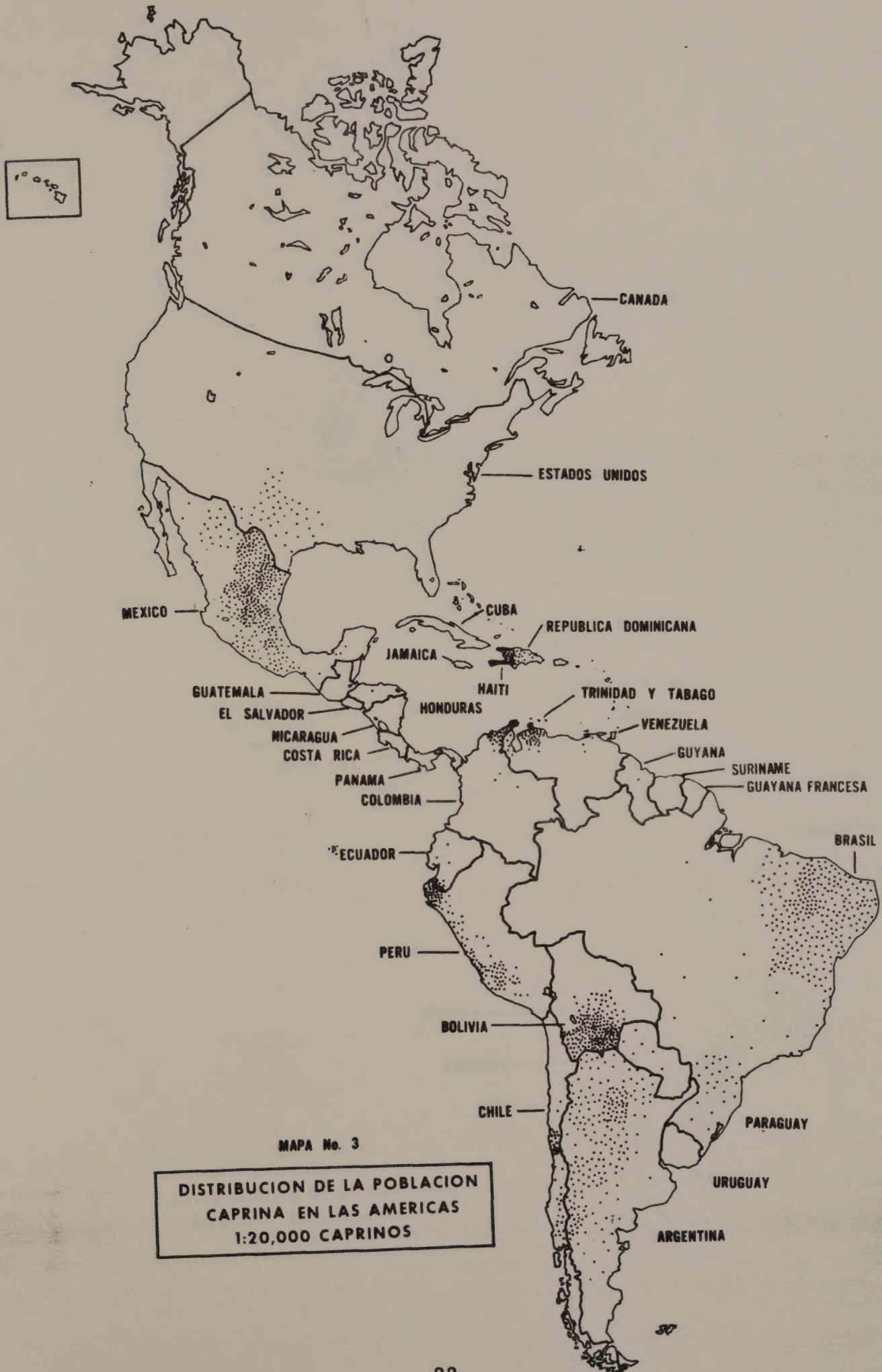
The eleventh of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

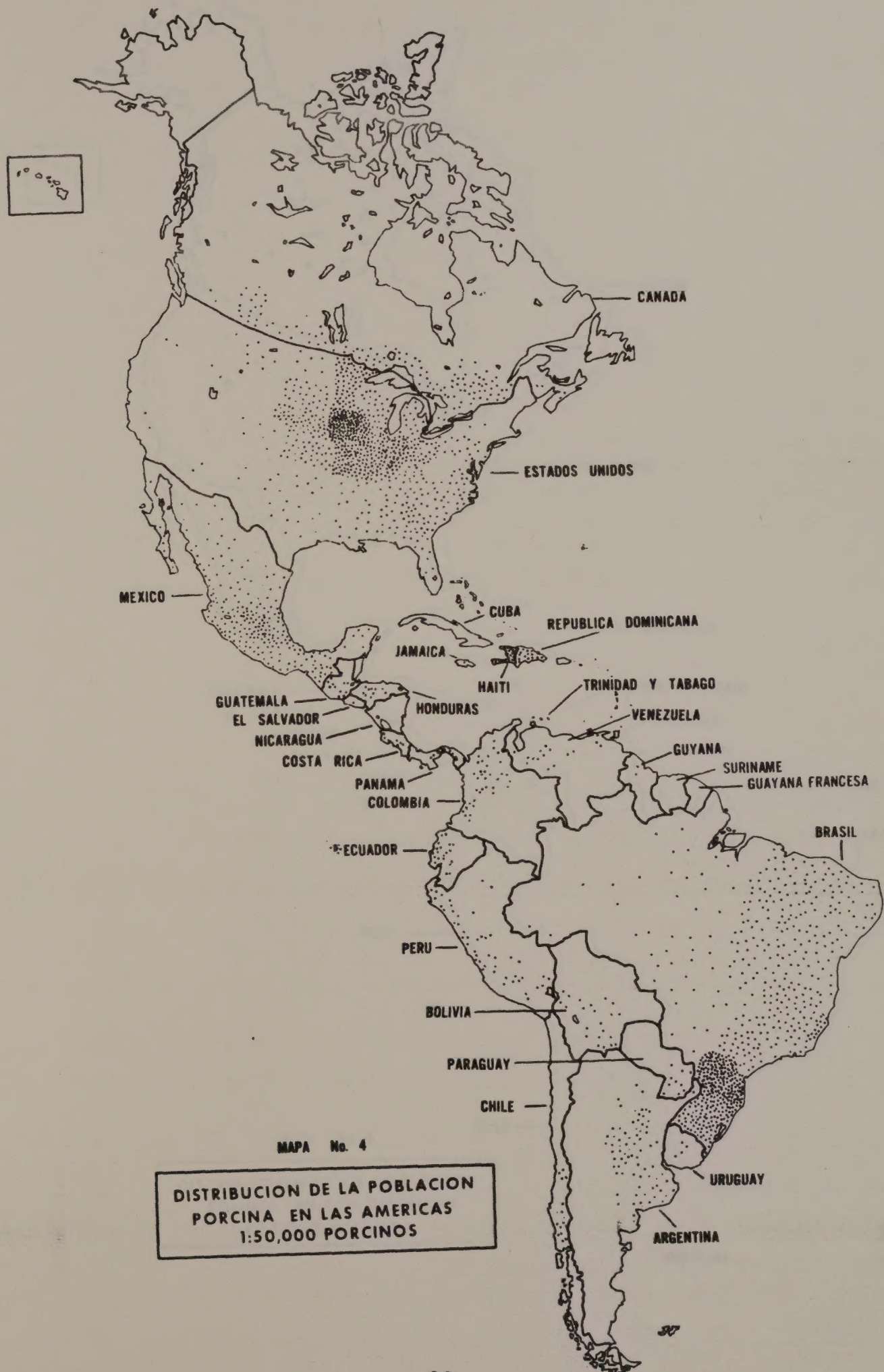
The twelfth of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

The thirteenth of these is the fact that the fossil is found in the same strata as the fossil of the same species. This is a very important fact, as it shows that the fossil is not a rare or exceptional form, but a common one.

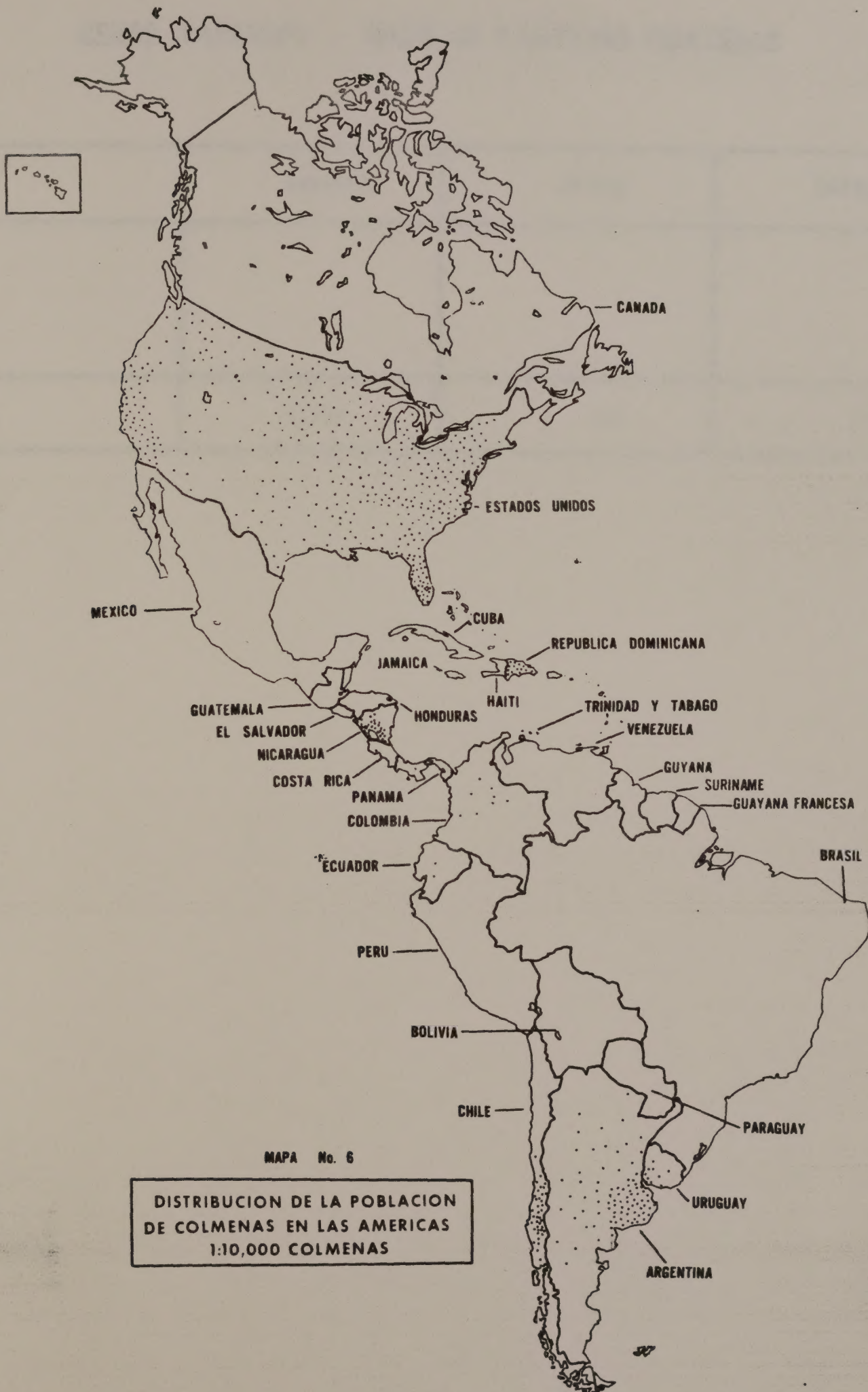












CENSO GANADERO - ANTILLAS Y GUAYANA FRANCESAS

PAIS	BOVINOS	OVINOS	CAPRINOS
TOTAL	2,700	435	368

CENSO GANADERO ANTILLAS Y GUAYANA FRANCESAS

PAIS	PORCINOS	EQUINOS
TOTAL	12,000	96

CENSO GANADERO - ANTILLAS NEERLANDESAS

ISLA	BOVINOS	OVINOS	CAPRINOS
ARUBA BONAIRE CURAZAO SABA SAN EUSTAQUIO SAN MARTIN			
TOTAL			

CENSO GANADERO - ANTILLAS NEERLANDESAS

ISLA	PORCINOS	EQUINOS
ARUBA BONAIRE CURAZAO SABA SAN EUSTAQUIO SAN MARTIN		
TOTAL		

CENSO GANADERO - ARGENTINA

PROVINCIA	BOVINOS	OVINOS	CAPRINOS
BUENOS AIRES	21,508,157	10,849,237	11,696
CATAMARCA	188,933	102,681	255,276
CORDOBA	8,349,311	647,311	455,670
CORRIENTES	3,756,604	2,143,431	5,196
CHACO	1,522,559	164,741	227,791
CHUBUT	115,406	5,705,282	126,357
ENTRE RIOS	4,408,901	1,377,019	6,653
FORMOSA	1,253,309	106,140	151,834
JUJUY	109,427	571,909	164,218
LA PAMPA	3,074,558	1,361,183	87,764
LA RIOJA	175,645	62,730	300,782
MENDOZA	173,035	152,722	488,909
MISIONES	202,717	6,625	13,330
NEUQUEN	154,544	647,725	539,918
RIO NEGRO	307,795	2,654,240	202,861
SALTA	591,914	187,658	203,535
SAN JUAN	18,695	19,561	42,994
SAN LUIS	1,171,289	237,988	251,628
SANTA CRUZ	25,890	6,076,707	306
SANTA FE	7,072,587	147,288	82,924
SGO. DEL ESTERO	932,971	525,600	889,375
TUCUMAN	223,705	65,170	71,246
TIERRA DEL FUEGO	16,717	878,478	-
TOTAL	55,354,669	34,691,426	4,580,263

FUENTE: Censo Ganadero 1974

CENSO GANADERO - ARGENTINA

PROVINCIA	PORCINOS	EQUINOS
BUENOS AIRES	1,201,840	555,162
CATAMARCA	9,902	40,358
CORDOBA	1,204,041	313,111
CORRIENTES	31,002	312,837
CHACO	89,718	242,367
CHUBUT	6,090	75,361
ENTRE RIOS	81,930	243,785
FORMOSA	50,346	129,255
JUJUY	5,694	49,035
LA PAMPA	138,267	80,909
LA RIOJA	7,576	33,347
MENDOZA	12,748	68,058
MISIONES	117,404	22,919
NEUQUEN	2,431	48,634
RIO NEGRO	5,642	70,863
SALTA	35,572	62,086
SAN JUAN	4,404	15,400
SAN LUIS	30,483	70,727
SANTA CRUZ	904	50,318
SANTA FE	973,225	270,463
SGO. DEL ESTERO	94,676	183,968
TUCUMAN	22,251	61,224
TIERRA DEL FUEGO	596	5,053
TOTAL	4,126,742	3,005,240

FUENTE: Censo Ganadero 1974.

CENSO GANADERO - BAHAMAS

PAIS	BOVINOS	OVINOS	CAPRINOS
TOTAL	3,400	23,100	14,100

CENSO GANADERO - BAHAMAS

PAIS	PORCINOS	EQUINOS
TOTAL	11,000	4,000

CENSO GANADERO - BARBADOS

ESTADO	BOVINOS	OVINOS	CAPRINOS
CHRYST CHURCH	724	4,212	643
ST. ANDREW	1,016	1,801	275
ST. GEORGE	548	1,847	337
ST. JAMES	637	1,683	292
ST. JOHN	406	1,253	212
ST. JOSEPH	375	789	177
ST. LUCY	584	3,388	664
ST. MICHAEL	804	3,337	1,369
ST. PHILLIPS	1,043	5,747	1,002
ST. PETER	420	2,065	285
ST. THOMAS	525	932	180
TOTAL	7,082	27,054	5,436

FUENTE: Ministry of Agriculture 1971

CENSO GANADERO - BARBADOS

ESTADO	PORCINOS	EQUINOS
Chryst Church	3,622	173
St. Andrew	1,402	18
St. George	2,833	88
St. James	1,871	41
St. John	1,836	43
St. Joseph	1,212	21
St. Lucy	1,794	37
St. Michael	6,408	320
St. Phillips	3,281	160
St. Peter	1,396	19
St. Thomas	1,860	32
TOTAL	27,515	952

FUENTE: Ministry of Agriculture 1971.

CENSO GANADERO - BELICE

	PORCINOS	EQUINOS
TOTAL		

CENSO GANADERO - BELICE

	BOVINOS	OVINOS	CAPRINOS
TOTAL			

CENSO GANADERO - BOLIVIA

DEPARTAMENTO	BOVINOS	OVINOS	CAPRINOS
BENI	1,027,416		
COCHABAMBA	118,156	1,304,000	223,404
CHUQUISACA	218,809	827,000	1,061,169
LA PAZ	164,199	2,470,000	
ORURO	70,562	1,126,000	
PANDO	10,915		
POTOSI	182,726	2,182,932	1,000,000
SANTA CRUZ	569,661	250,000	558,510
TARIJA	44,497	353,000	837,765
TOTAL	2,406,941	8,512,932	3,680,848

FUENTE: M. A. C. A. 1973

CENSO GANADERO - BOLIVIA

DEPARTAMENTO	PORCINOS	EQUINOS
BENI	38,000	134,000
COCHABAMBA	216,800	211,235
CHUQUISACA	204,000	156,390
LA PAZ	154,000	75,890
ORURO	50,000	161,200
PANDO	25,200	16,750
POTOSI	89,000	284,000
SANTA CRUZ	216,800	180,470
TARIJA	194,200	114,730
TOTAL	1,188,000	1,334,665

FUENTE: M. A. C. A. 1973

CENSO GANADERO - BRASIL

ESTADO	BOVINOS	OVINOS	CAPRINOS
ACRE (Territorio)	99,820	14,761	1,165
ALAGOAS	596,109	86,998	68,235
AMAPA (Territorio)	88,287	3,665	2,620
AMAZONAS	317,808	26,201	7,860
BAHIA	6,482,389	1,870,543	1,695,792
CEARA	2,041,562	1,333,676	720,016
DISTRITO FEDERAL	41,500	1,020	1,300
ESPIRITU SANTO	1,683,462	12,237	30,105
GOIAS	10,976,757	56,029	51,069
GUANABARA	16,764	432	583
MARANHAO	1,721,854	175,061	569,612
MATO GROSSO	11,873,569	191,928	73,656
MINAS GERAIS	17,077,395	132,466	107,143
PARA	1,377,655	57,637	40,543
PARAIBA	1,036,212	368,293	338,029
PARANA	5,640,628	216,059	360,767
PERNAMBUCO	1,439,283	1,146,834	393,669
PIAUI	1,467,902	919,048	1,529,737
RIO DE JANEIRO	1,416,271	11,261	18,026
RIO GRANDE DO NORTE	731,275	239,107	153,457
RIO GRANDE DO SUL	12,960,804	12,490,066	82,787
RONDONIA	41,030	6,070	1,395
RORAIMA	286,116	21,546	2,982
SANTA CATARINA	2,161,296	186,022	83,281
SAO PAULO	10,192,202	101,501	61,267
SERGIPE	727,414	92,182	21,868
TOTAL	92,495,364	19,760,643	6,416,964

FUENTE: Produção da Pecuaria Municipal 1974.

CENSO GANADERO - BRASIL

ESTADO	PORCINOS	EQUINOS
ACRE (Territorio)	113,880	7,654
ALAGOAS	73,394	93,129
AMAPA (Territorio)	49,250	5,007
AMAZONAS	162,218	7,980
BAHIA	2,431,352	1,274,054
CEARA	782,447	523,674
DISTRITO FEDERAL	20,000	5,150
ESPIRITU SANTO	770,931	129,652
GOIAS	2,133,433	603,352
GUANABARA	12,681	2,965
MARANHAO	3,166,808	558,667
MATO GROSSO	1,115,857	422,084
MINAS GERAIS	3,961,560	1,105,896
PARA	738,686	115,242
PARAIBA	180,064	192,927
PARANA	6,728,363	716,391
PERNAMBUCO	393,669	298,785
PIAUI	1,416,308	523,339
RIO DE JANEIRO	182,204	78,029
RIO GRANDE DO NORTE	154,982	128,238
RIO GRANDE DO SUL	4,309,386	765,681
RONDONIA	40,700	8,366
RORAIMA	26,597	26,642
SANTA CATARINA	3,460,134	236,409
SAO PAULO	1,730,439	616,426
SERGIPE	36,685	94,045
TOTAL	34,192,028	8,539,784

FUENTE: Produção da Pecuaria Municipal 1974.

CENSO GANADERO - CANADA

PROVINCIA	BOVINOS	OVINOS	CAPRINOS
ALBERTA	4,471,000	160,000	
BRITISH COLUMBIA	712,000	44,000	
NEW BRUNSWICK	116,000	11,600	
NOVA SCOTIA	138,000	39,700	
MANITOBA	1,373,000	19,000	
ONTARIO	3,077,000	131,000	
PRINCE EDWARD ISLAND	105,000	6,700	
QUEBEC	1,740,000	43,500	
SASKATCHEWAN	2,936,000	77,000	
TOTAL	14,538,000	532,500	25,000

FUENTE: Quarterly bulletin of Agricultural Statistics.1977

CENSO GANADERO - CANADA

PROVINCIA	PORCINOS	EQUINOS
ALBERTA	940,000	
BRITISH COLUMBIA	65,000	
NEW BRUNSWICK	43,000	
NOVA SCOTIA	77,000	
MANITOBA	650,000	
ONTARIO	2,056,000	
PRINCE EDWARD ISLAND	82,000	
QUEBEC	1,866,000	
SASKATCHEWAN	500,000	
TOTAL	6,279,000	349,000

FUENTE: Quarterly bulletin of Agricultural Statistics. 1977

CENSO GANADERO - COLOMBIA

DEPARTAMENTO	BOVINOS	OVINOS	CAPRINOS
ANTIOQUIA	1,781,932	47,610	1,158
ATLANTICO	295,851	1,058	853
BOLIVAR	1,576,315	19,044	6,581
BOYACA	642,616	507,840	26,265
CALDAS	419,061	17,986	61
CAQUETA	514,720		
CASANARE	1,633,386		
CAUCA	797,503	43,070	2,620
CESAR	1,447,991	84,640	13,259
CORDOBA	3,242,708	34,914	8,653
CUNDINAMARCA	1,497,877	197,846	2,925
CHOCO	37,703		158
GUAJIRA	298,024	576,610	468,742
HUILA	853,695	12,696	2,194
MAGDALENA	1,387,484	63,480	33,090
META	1,156,439	3,174	1,036
NARIÑO	430,025	133,308	1,280
NORTE DE SANTANDER	547,041	30,682	14,625
QUINDIO	81,717	606	74
RISARALDA	127,211	780	63
SANTANDER	879,887	84,640	34,857
SUCRE	1,760,077	2,080	2,580
TOLIMA	1,149,962	49,726	2,864
VALLE	927,974	5,290	1,402
OTROS TERRITORIOS	371,309	5,498	731
TOTAL	23,858,508	1,920,770	626,071

FUENTE: Ministerio de Agricultura.

Oficina de Planeamiento del Sector Agropecuario 1976.

CENSO GANADERO - COLOMBIA

DEPARTAMENTO	PORCINOS	EQUINOS
ANTIOQUIA	406,038	263,749
ATLANTICO	15,369	20,489
BOLIVAR	94,299	209,500
BOYACA	160,708	250,697
CALDAS	49,331	97,201
CAQUETA		
CASANARE		
CAUCA	43,070	129,663
CESAR	50,850	
CORDOBA	217,249	233,751
CUNDINAMARCA	124,847	220,292
CHOCO	11,234	2,264
GUAJIRA	30,358	150,135
HUILA	39,655	126,992
MAGDALENA	107,581	234,677
META	44,399	67,989
NARIÑO	85,002	65,891
NORTE DE SANTANDER	50,659	17,104
QUINDIO	14,230	
RISARALDA	23,148	
SANTANDER	83,484	130,277
SUCRE	48,383	
TOLIMA	82,725	130,429
VALLE	73,808	91,676
OTROS TERRITORIOS	40,947	83,276
TOTAL	1,897,374	2,526,052

FUENTE: Ministerio de Agricultura.

Oficina de Planeamiento del Sector Agropecuario 1976.

CENSO GANADERO - COSTA RICA

PROVINCIA	BOVINOS	OVINOS	CAPRINOS
ALAJUELA	299,216		
CARTAGO	70,621		
HEREDIA	35,970		
GUANACASTE	472,405		
LIMON	57,492		
PUNTARENAS	273,521		
SAN JOSE	136,993		
TOTAL	1,346,222		

FUENTE: Censo Nacional Agropecuario 1973

CENSO GANADERO - COSTA RICA

PROVINCIA	PORCINOS	EQUINOS
ALAJUELA	41,328	18,649
CARTAGO	12,256	4,364
HEREDIA	6,001	2,086
GUANACASTE	56,251	38,916
LIMON	13,544	7,520
PUNTARENAS	55,140	22,282
SAN JOSE	68,283	12,756
TOTAL	240,802	106,576

CENSO GANADERO - CUBA

PROVINCIA	BOVINOS	OVINOS	CAPRINOS
TOTAL			

CENSO GANADERO - CUBA

PROVINCIA	PORCINOS	EQUINOS
TOTAL		

CENSO GANADERO - CHILE

PROVINCIA	BOVINOS	OVINOS	CAPRINOS
ACONCAGUA	53,715	78,951	4,085
AYSEN	138,181	860,295	8,685
ANTOFAGASTA	859	13,169	3,895
ARAUCO	118,989	36,998	8,317
ATACAMA	9,836	9,396	37,740
BIO-BIO	182,489	85,508	27,270
CAUTIN	478,909	286,224	70,250
CHILOE	129,519	201,427	6,203
COLCHAGUA	94,747	268,036	23,953
CONCEPCION	54,257	22,243	3,395
COQUIMBO	59,635	206,897	341,145
CURICO	47,978	87,871	13,424
LINARES	101,522	118,011	23,328
LLANQUIHUE	284,798	150,189	22,431
MAGALLANES	62,307	2,779,273	30
MALLECO	212,241	117,262	44,839
MAULE	37,404	94,616	8,790
ÑUBLE	148,502	227,873	55,853
O'HIGGINS	94,364	50,172	13,272
OSORNO	356,016	142,636	33,270
SANTIAGO	175,928	347,004	19,027
TALCA	76,970	132,850	16,543
TARAPACA	3,736	55,699	6,484
VALDIVIA	441,168	252,844	85,689
VALPARAISO	53,633	64,836	14,329
TOTAL	3,417,003	6,690,280	933,007

FUENTE: Dirección de Estadística y Censo 1965.

CENSO GANADERO - CHILE

PROVINCIA	PORCINOS	EQUINOS
ACONCAGUA	17,447	19,746
AYSEN	5,132	21,032
ANTOFAGASTA	4,916	3,236
ARAUCO	24,616	8,024
ATACAMA	5,533	10,186
BIO-BIO	51,562	24,957
CAUTIN	155,379	33,999
CHILOE	42,296	15,011
COLCHAGUA	47,218	30,534
CONCEPCION	29,084	10,640
COQUIMBO	27,258	53,158
CURICO	29,499	18,425
LINARES	37,597	29,962
LLANQUIHUE	48,977	12,724
MAGALLANES	4,766	14,517
MALLECO	59,373	18,585
MAULE	22,361	11,771
ÑUBLE	83,526	38,424
O'HIGGINS	54,702	26,272
OSORNO	55,075	13,083
SANTIAGO	79,666	49,045
TALCA	31,932	27,728
TARAPACA	3,712	5,457
VALDIVIA	80,816	22,869
VALPARAISO	19,151	16,666
TOTAL	1,021,594	536,051

FUENTE: Dirección de Estadística y Censo 1965.

STANDARD CHART

STANDARD	CHART	STANDARD
1.0000	1.0000	1.0000
1.0001	1.0001	1.0001
1.0002	1.0002	1.0002
1.0003	1.0003	1.0003
1.0004	1.0004	1.0004
1.0005	1.0005	1.0005
1.0006	1.0006	1.0006
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1.0097	1.0097	1.0097
1.0098	1.0098	1.0098
1.0099	1.0099	1.0099
1.0100	1.0100	1.0100

CENSO GANADERO - ECUADOR

PROVINCIA	BOVINOS	CAPRINOS	OVINOS
AZUAY	136,445	142,031	6,364
BOLIVAR	76,872	116,794	1,971
CAÑAR	61,761	55,325	1,158
CARCHI	50,048	13,985	979
CHIMBORAZO	114,649	249,043	13,759
COLON (GALAPAGOS)		909	42
COTOPAXI	112,576	211,818	9,018
EL ORO	89,744	5,483	4,821
ESMERALDAS	120,595	91	294
GUAYAS	327,405	1,183	35,363
IMBABURA	64,625	53,019	3,081
LOJA	169,149	60,038	109,835
LOS RIOS	164,401	314	2,055
MANABI	403,798	79	10,515
MANGA DEL CURA	11,534		12
MORONA-SANTIAGO	98,518	1,339	134
NAPO	33,563	979	75
PASTAZA	12,447	13	26
PICHINCHA	293,444	73,858	18,193
TUNGURAHUA	70,069	108,687	3,560
ZAMORA CHICHIPE	34,412	1,652	99
TOTAL	2,446,055	1,096,640	221,354

FUENTE: II Censo Agropecuario 1974. Resultados Provisionales.

STATE OF TEXAS

NAME	ADDRESS	CITY	STATE
JOHN D. ROBERTS	1234 E. MAIN ST.	HOUSTON	TX
MARY K. SMITH	5678 N. RICHMOND	SAN ANTONIO	TX
WILLIAM L. JONES	9101 W. LOOP W.	IRVING	TX
ELIZABETH A. BROWN	2345 S. GULF	HOUSTON	TX
CHARLES F. WHITE	3456 E. 12TH	HOUSTON	TX
HELEN M. GREEN	4567 N. LOOP E.	HOUSTON	TX
FRANK R. BLACK	5678 W. 15TH	HOUSTON	TX
JOHN A. GRAY	6789 E. 18TH	HOUSTON	TX
MICHAEL D. HARRIS	7890 N. LOOP W.	HOUSTON	TX
SARAH J. KING	8901 W. 21ST	HOUSTON	TX
DAVID L. WALKER	9012 E. 24TH	HOUSTON	TX
JANE E. PERKINS	1013 N. LOOP E.	HOUSTON	TX
ROBERT C. MILLER	1124 W. 27TH	HOUSTON	TX
LUCAS B. FOSTER	1235 E. 30TH	HOUSTON	TX
ANGELA N. BAKER	1346 N. LOOP W.	HOUSTON	TX
CHRISTOPHER D. GARCIA	1457 W. 33RD	HOUSTON	TX
STEPHANIE L. ROY	1568 E. 36TH	HOUSTON	TX
NATHAN P. COOPER	1679 N. LOOP E.	HOUSTON	TX
OLIVIA K. REED	1780 W. 39TH	HOUSTON	TX
ISAC M. BARNES	1891 E. 42ND	HOUSTON	TX
EMILY J. FORD	1902 N. LOOP W.	HOUSTON	TX
LEONARD R. WATSON	2013 W. 45TH	HOUSTON	TX
BERNARD A. STEVENSON	2124 E. 48TH	HOUSTON	TX
JOYCE E. HAYES	2235 N. LOOP E.	HOUSTON	TX
WALTER D. MYERS	2346 W. 49TH	HOUSTON	TX
DEBRA L. FERGUSON	2457 E. 52ND	HOUSTON	TX
ANDREW S. COLEMAN	2568 N. LOOP W.	HOUSTON	TX
CHRISTINA M. JONES	2679 W. 55TH	HOUSTON	TX
ANTHONY J. ROSS	2780 E. 58TH	HOUSTON	TX
JOANNE K. WARD	2891 N. LOOP E.	HOUSTON	TX
JOSEPH L. TORRES	2902 W. 59TH	HOUSTON	TX
REBECCA N. PETERSON	3013 E. 62ND	HOUSTON	TX
DAVID M. HENDERSON	3124 N. LOOP W.	HOUSTON	TX
AMANDA J. COLEMAN	3235 W. 65TH	HOUSTON	TX
JUSTIN R. BROWN	3346 E. 68TH	HOUSTON	TX
ASHLEY L. WALKER	3457 N. LOOP E.	HOUSTON	TX
KEVIN D. PERKINS	3568 W. 69TH	HOUSTON	TX
LAUREN M. FOSTER	3679 E. 72ND	HOUSTON	TX
BLAKE S. BARNES	3780 N. LOOP W.	HOUSTON	TX
SKYLAR J. ROY	3891 W. 75TH	HOUSTON	TX
TYLER K. COOPER	3902 E. 78TH	HOUSTON	TX
ADAM P. REED	4013 N. LOOP E.	HOUSTON	TX
HAILEY M. BARNES	4124 W. 79TH	HOUSTON	TX
JOHN A. STEVENSON	4235 E. 82ND	HOUSTON	TX
EMILY J. HAYES	4346 N. LOOP W.	HOUSTON	TX
WALTER D. MYERS	4457 W. 85TH	HOUSTON	TX
DEBRA L. FERGUSON	4568 E. 88TH	HOUSTON	TX
ANDREW S. COLEMAN	4679 N. LOOP E.	HOUSTON	TX
CHRISTINA M. JONES	4780 W. 89TH	HOUSTON	TX
ANTHONY J. ROSS	4891 E. 92ND	HOUSTON	TX
JOANNE K. WARD	4902 N. LOOP W.	HOUSTON	TX
JOSEPH L. TORRES	5013 W. 95TH	HOUSTON	TX
REBECCA N. PETERSON	5124 E. 98TH	HOUSTON	TX
DAVID M. HENDERSON	5235 N. LOOP E.	HOUSTON	TX
AMANDA J. COLEMAN	5346 W. 99TH	HOUSTON	TX
JUSTIN R. BROWN	5457 E. 102ND	HOUSTON	TX
ASHLEY L. WALKER	5568 N. LOOP W.	HOUSTON	TX
KEVIN D. PERKINS	5679 W. 105TH	HOUSTON	TX
LAUREN M. FOSTER	5780 E. 108TH	HOUSTON	TX
BLAKE S. BARNES	5891 N. LOOP E.	HOUSTON	TX
SKYLAR J. ROY	5902 W. 109TH	HOUSTON	TX
TYLER K. COOPER	6013 E. 112ND	HOUSTON	TX
ADAM P. REED	6124 N. LOOP W.	HOUSTON	TX
HAILEY M. BARNES	6235 W. 115TH	HOUSTON	TX
JOHN A. STEVENSON	6346 E. 118TH	HOUSTON	TX
EMILY J. HAYES	6457 N. LOOP E.	HOUSTON	TX
WALTER D. MYERS	6568 W. 119TH	HOUSTON	TX
DEBRA L. FERGUSON	6679 E. 122ND	HOUSTON	TX
ANDREW S. COLEMAN	6780 N. LOOP W.	HOUSTON	TX
CHRISTINA M. JONES	6891 W. 125TH	HOUSTON	TX
ANTHONY J. ROSS	6902 E. 128TH	HOUSTON	TX
JOANNE K. WARD	7013 N. LOOP E.	HOUSTON	TX
JOSEPH L. TORRES	7124 W. 129TH	HOUSTON	TX
REBECCA N. PETERSON	7235 E. 132ND	HOUSTON	TX
DAVID M. HENDERSON	7346 N. LOOP W.	HOUSTON	TX
AMANDA J. COLEMAN	7457 W. 135TH	HOUSTON	TX
JUSTIN R. BROWN	7568 E. 138TH	HOUSTON	TX
ASHLEY L. WALKER	7679 N. LOOP E.	HOUSTON	TX
KEVIN D. PERKINS	7780 W. 139TH	HOUSTON	TX
LAUREN M. FOSTER	7891 E. 142ND	HOUSTON	TX
BLAKE S. BARNES	7902 N. LOOP W.	HOUSTON	TX
SKYLAR J. ROY	8013 W. 145TH	HOUSTON	TX
TYLER K. COOPER	8124 E. 148TH	HOUSTON	TX
ADAM P. REED	8235 N. LOOP E.	HOUSTON	TX
HAILEY M. BARNES	8346 W. 149TH	HOUSTON	TX
JOHN A. STEVENSON	8457 E. 152ND	HOUSTON	TX
EMILY J. HAYES	8568 N. LOOP W.	HOUSTON	TX
WALTER D. MYERS	8679 W. 155TH	HOUSTON	TX
DEBRA L. FERGUSON	8780 E. 158TH	HOUSTON	TX
ANDREW S. COLEMAN	8891 N. LOOP E.	HOUSTON	TX
CHRISTINA M. JONES	8902 W. 159TH	HOUSTON	TX
ANTHONY J. ROSS	9013 E. 162ND	HOUSTON	TX
JOANNE K. WARD	9124 N. LOOP W.	HOUSTON	TX
JOSEPH L. TORRES	9235 W. 165TH	HOUSTON	TX
REBECCA N. PETERSON	9346 E. 168TH	HOUSTON	TX
DAVID M. HENDERSON	9457 N. LOOP E.	HOUSTON	TX
AMANDA J. COLEMAN	9568 W. 169TH	HOUSTON	TX
JUSTIN R. BROWN	9679 E. 172ND	HOUSTON	TX
ASHLEY L. WALKER	9780 N. LOOP W.	HOUSTON	TX
KEVIN D. PERKINS	9891 W. 175TH	HOUSTON	TX
LAUREN M. FOSTER	9902 E. 178TH	HOUSTON	TX
BLAKE S. BARNES	10013 N. LOOP E.	HOUSTON	TX
SKYLAR J. ROY	10124 W. 179TH	HOUSTON	TX
TYLER K. COOPER	10235 E. 182ND	HOUSTON	TX
ADAM P. REED	10346 N. LOOP W.	HOUSTON	TX
HAILEY M. BARNES	10457 W. 185TH	HOUSTON	TX
JOHN A. STEVENSON	10568 E. 188TH	HOUSTON	TX
EMILY J. HAYES	10679 N. LOOP E.	HOUSTON	TX
WALTER D. MYERS	10780 W. 189TH	HOUSTON	TX
DEBRA L. FERGUSON	10891 E. 192ND	HOUSTON	TX
ANDREW S. COLEMAN	10902 N. LOOP W.	HOUSTON	TX
CHRISTINA M. JONES	11013 W. 195TH	HOUSTON	TX
ANTHONY J. ROSS	11124 E. 198TH	HOUSTON	TX
JOANNE K. WARD	11235 N. LOOP E.	HOUSTON	TX
JOSEPH L. TORRES	11346 W. 199TH	HOUSTON	TX
REBECCA N. PETERSON	11457 E. 202ND	HOUSTON	TX
DAVID M. HENDERSON	11568 N. LOOP W.	HOUSTON	TX
AMANDA J. COLEMAN	11679 W. 205TH	HOUSTON	TX
JUSTIN R. BROWN	11780 E. 208TH	HOUSTON	TX
ASHLEY L. WALKER	11891 N. LOOP E.	HOUSTON	TX
KEVIN D. PERKINS	11902 W. 209TH	HOUSTON	TX
LAUREN M. FOSTER	12013 E. 212ND	HOUSTON	TX
BLAKE S. BARNES	12124 N. LOOP W.	HOUSTON	TX
SKYLAR J. ROY	12235 W. 215TH	HOUSTON	TX
TYLER K. COOPER	12346 E. 218TH	HOUSTON	TX
ADAM P. REED	12457 N. LOOP E.	HOUSTON	TX
HAILEY M. BARNES	12568 W. 219TH	HOUSTON	TX
JOHN A. STEVENSON	12679 E. 222ND	HOUSTON	TX
EMILY J. HAYES	12780 N. LOOP W.	HOUSTON	TX
WALTER D. MYERS	12891 W. 225TH	HOUSTON	TX
DEBRA L. FERGUSON	12902 E. 228TH	HOUSTON	TX
ANDREW S. COLEMAN	13013 N. LOOP E.	HOUSTON	TX
CHRISTINA M. JONES	13124 W. 229TH	HOUSTON	TX
ANTHONY J. ROSS	13235 E. 232ND	HOUSTON	TX
JOANNE K. WARD	13346 N. LOOP W.	HOUSTON	TX
JOSEPH L. TORRES	13457 W. 235TH	HOUSTON	TX
REBECCA N. PETERSON	13568 E. 238TH	HOUSTON	TX
DAVID M. HENDERSON	13679 N. LOOP E.	HOUSTON	TX
AMANDA J. COLEMAN	13780 W. 239TH	HOUSTON	TX
JUSTIN R. BROWN	13891 E. 242ND	HOUSTON	TX
ASHLEY L. WALKER	13902 N. LOOP W.	HOUSTON	TX
KEVIN D. PERKINS	14013 W. 245TH	HOUSTON	TX
LAUREN M. FOSTER	14124 E. 248TH	HOUSTON	TX
BLAKE S. BARNES	14235 N. LOOP E.	HOUSTON	TX
SKYLAR J. ROY	14346 W. 249TH	HOUSTON	TX
TYLER K. COOPER	14457 E. 252ND	HOUSTON	TX
ADAM P. REED	14568 N. LOOP W.	HOUSTON	TX
HAILEY M. BARNES	14679 W. 255TH	HOUSTON	TX
JOHN A. STEVENSON	14780 E. 258TH	HOUSTON	TX
EMILY J. HAYES	14891 N. LOOP E.	HOUSTON	TX
WALTER D. MYERS	14902 W. 259TH	HOUSTON	TX
DEBRA L. FERGUSON	15013 E. 262ND	HOUSTON	TX
ANDREW S. COLEMAN	15124 N. LOOP W.	HOUSTON	TX
CHRISTINA M. JONES	15235 W. 265TH	HOUSTON	TX
ANTHONY J. ROSS	15346 E. 268TH	HOUSTON	TX
JOANNE K. WARD	15457 N. LOOP E.	HOUSTON	TX
JOSEPH L. TORRES	15568 W. 269TH	HOUSTON	TX
REBECCA N. PETERSON	15679 E. 272ND	HOUSTON	TX
DAVID M. HENDERSON	15780 N. LOOP W.	HOUSTON	TX
AMANDA J. COLEMAN	15891 W. 275TH	HOUSTON	TX
JUSTIN R. BROWN	15902 E. 278TH	HOUSTON	TX
ASHLEY L. WALKER	16013 N. LOOP E.	HOUSTON	TX
KEVIN D. PERKINS	16124 W. 279TH	HOUSTON	TX
LAUREN M. FOSTER	16235 E. 282ND	HOUSTON	TX
BLAKE S. BARNES	16346 N. LOOP W.	HOUSTON	TX
SKYLAR J. ROY	16457 W. 285TH	HOUSTON	TX
TYLER K. COOPER	16568 E. 288TH	HOUSTON	TX
ADAM P. REED	16679 N. LOOP E.	HOUSTON	TX
HAILEY M. BARNES	16780 W. 289TH	HOUSTON	TX
JOHN A. STEVENSON	16891 E. 292ND	HOUSTON	TX
EMILY J. HAYES	16902 N. LOOP W.	HOUSTON	TX
WALTER D. MYERS	17013 W. 295TH	HOUSTON	TX
DEBRA L. FERGUSON	17124 E. 298TH	HOUSTON	TX
ANDREW S. COLEMAN	17235 N. LOOP E.	HOUSTON	TX
CHRISTINA M. JONES	17346 W. 299TH	HOUSTON	TX
ANTHONY J. ROSS	17457 E. 302ND	HOUSTON	TX
JOANNE K. WARD	17568 N. LOOP W.	HOUSTON	TX
JOSEPH L. TORRES	17679 W. 305TH	HOUSTON	TX
REBECCA N. PETERSON	17780 E. 308TH	HOUSTON	TX
DAVID M. HENDERSON	17891 N. LOOP E.	HOUSTON	TX
AMANDA J. COLEMAN	17902 W. 309TH	HOUSTON	TX
JUSTIN R. BROWN	18013 E. 312ND	HOUSTON	TX
ASHLEY L. WALKER	18124 N. LOOP W.	HOUSTON	TX
KEVIN D. PERKINS	18235 W. 315TH	HOUSTON	TX
LAUREN M. FOSTER	18346 E. 318TH	HOUSTON	TX
BLAKE S. BARNES	18457 N. LOOP E.	HOUSTON	TX
SKYLAR J. ROY	18568 W. 319TH	HOUSTON	TX
TYLER K. COOPER	18679 E. 322ND	HOUSTON	TX
ADAM P. REED	18780 N. LOOP W.	HOUSTON	TX
HAILEY M. BARNES	18891 W. 325TH	HOUSTON	TX
JOHN A. STEVENSON	18902 E. 328TH	HOUSTON	TX
EMILY J. HAYES	19013 N. LOOP E.	HOUSTON	TX
WALTER D. MYERS	19124 W. 329TH	HOUSTON	TX
DEBRA L. FERGUSON	19235 E. 332ND	HOUSTON	TX
ANDREW S. COLEMAN	19346 N. LOOP W.	HOUSTON	TX
CHRISTINA M. JONES	19457 W. 335TH	HOUSTON	TX
ANTHONY J. ROSS	19568 E. 338TH	HOUSTON	TX
JOANNE K. WARD	19679 N. LOOP E.	HOUSTON	TX
JOSEPH L. TORRES	19780 W. 339TH	HOUSTON	TX
REBECCA N. PETERSON	19891 E. 342ND	HOUSTON	TX
DAVID M. HENDERSON	19902 N. LOOP W.	HOUSTON	TX
AMANDA J. COLEMAN	20013 W. 345TH	HOUSTON	TX
JUSTIN R. BROWN	20124 E. 348TH	HOUSTON	TX
ASHLEY L. WALKER	20235 N. LOOP E.	HOUSTON	TX
KEVIN D. PERKINS	20346 W. 349TH	HOUSTON	TX
LAUREN M. FOSTER	20457 E. 352ND	HOUSTON	TX
BLAKE S. BARNES	20568 N. LOOP W.	HOUSTON	TX
SKYLAR J. ROY	20679 W. 355TH	HOUSTON	TX
TYLER K. COOPER	20780 E. 358TH	HOUSTON	TX
ADAM P. REED	20891 N. LOOP E.	HOUSTON	TX
HAILEY M. BARNES	20902 W. 359TH	HOUSTON	TX
JOHN A. STEVENSON	21013 E. 362ND	HOUSTON	TX
EMILY J. HAYES	21124 N. LOOP W.	HOUSTON	TX
WALTER D. MYERS	21235 W. 365TH	HOUSTON	TX
DEBRA L. FERGUSON	21346 E. 368TH	HOUSTON	TX
ANDREW S. COLEMAN	21457 N. LOOP E.	HOUSTON	TX
CHRISTINA M. JONES	21568 W. 369TH	HOUSTON	TX
ANTHONY J. ROSS	21679 E. 372ND	HOUSTON	TX
JOANNE K. WARD	21780 N. LOOP W.	HOUSTON	TX
JOSEPH L. TORRES	21891 W. 375TH	HOUSTON	TX
REBECCA N. PETERSON	21902 E. 378TH	HOUSTON	TX
DAVID M. HENDERSON	22013 N. LOOP E.	HOUSTON	TX
AMANDA J. COLEMAN	22124 W. 379TH	HOUSTON	TX
JUSTIN R. BROWN	22235 E. 382ND	HOUSTON	TX
ASHLEY L. WALKER	22346 N. LOOP W.	HOUSTON	TX
KEVIN D. PERKINS	22457 W. 385TH	HOUSTON	TX
LAUREN M. FOSTER	22568 E. 388TH	HOUSTON	TX
BLAKE S. BARNES	22679 N. LOOP E.	HOUSTON	TX
SKYLAR J. ROY	22780 W. 389TH	HOUSTON	TX
TYLER K. COOPER	22891 E. 392ND	HOUSTON	TX
ADAM P. REED	22902 N. LOOP W.	HOUSTON	TX
HAILEY M. BARNES	23013 W. 395TH	HOUSTON	TX
JOHN A. STEVENSON	23124 E. 398TH	HOUSTON	TX
EMILY J. HAYES	23235 N. LOOP E.	HOUSTON	TX
WALTER D. MYERS	23346 W. 399TH	HOUSTON	TX
DEBRA L. FERGUSON	23457 E. 402ND	HOUSTON	TX
ANDREW S. COLEMAN	23568 N. LOOP W.	HOUSTON	TX
CHRISTINA M. JONES	23679 W. 405TH	HOUSTON	TX
ANTHONY J. ROSS	23780 E. 408TH	HOUSTON	TX
JOANNE K. WARD	23891 N. LOOP E.	HOUSTON	TX
JOSEPH L. TORRES	23902 W. 409TH	HOUSTON	TX
REBECCA N. PETERSON	24013 E. 412ND	HOUSTON	TX
DAVID M. HENDERSON	24124 N. LOOP W.	HOUSTON	TX
AMANDA J. COLEMAN	24235 W. 415TH	HOUSTON	TX
JUSTIN R. BROWN	24346 E. 418TH	HOUSTON	TX
ASHLEY L. WALKER	24457 N. LOOP E.	HOUSTON	TX
KEVIN D. PERKINS	24568 W. 419TH	HOUSTON	TX
LAUREN M. FOSTER	24679 E. 422ND	HOUSTON	TX
BLAKE S. BARNES	24780 N. LOOP W.	HOUSTON	TX
SKYLAR J. ROY	24891 W. 425TH	HOUSTON	TX
TYLER K. COOPER	24902 E. 428TH	HOUSTON	TX
ADAM P. REED	25013 N. LOOP E.	HOUSTON	TX
HAILEY M. BARNES	25124 W. 429TH	HOUSTON	TX
JOHN A. STEVENSON	25235 E. 432ND	HOUSTON	TX
EMILY J. HAYES	25346 N. LOOP W.	HOUSTON	TX
WALTER D. MYERS	25457 W. 435TH	HOUSTON	TX
DEBRA L. FERGUSON	25568 E. 438TH	HOUSTON	TX
ANDREW S. COLEMAN	25679 N. LOOP E.	HOUSTON	TX
CHRISTINA M. JONES	25780 W. 439TH	HOUSTON	TX
ANTHONY J. ROSS	25891 E. 442ND	HOUSTON	TX
JOANNE K. WARD	25902 N. LOOP W.	HOUSTON	TX
JOSEPH L. TORRES	26013 W. 445TH	HOUSTON	TX
REBECCA N. PETERSON	26124 E. 448TH	HOUSTON	TX
DAVID M. HENDERSON	26235 N. LOOP E.	HOUSTON	TX
AMANDA J. COLEMAN	26346 W. 449TH	HOUSTON	TX
JUSTIN R. BROWN	26457 E. 452ND	HOUSTON	TX
ASHLEY L. WALKER	26568 N. LOOP W.	HOUSTON	TX
KEVIN D. PERKINS	26679 W. 455TH	HOUSTON	TX
LAUREN M. FOSTER	26780 E. 458TH	HOUSTON	TX
BLAKE S. BARNES</			

CENSO GANADERO - ECUADOR

PROVINCIA	PORCINOS	EQUINOS
AZUAY	57,477	22,479
BOLIVAR	50,548	24,286
CAÑAR	31,828	10,976
CARCHI	16,259	14,067
CHIMBORAZO	73,177	38,440
COLON (GALAPAGOS)	909	1,947
COTOPAXI	52,731	29,247
EL ORO	31,771	20,777
ESMERALDAS	51,840	13,805
GUAYAS	110,869	64,833
IMBABURA	34,879	14,838
LOJA	108,859	69,463
LOS RIOS	83,829	41,496
MANABI	236,429	110,541
MANGA DEL CURA	13,512	
MORONA-SANTIAGO	9,167	9,350
NAPO	9,446	2,839
PASTAZA	1,171	1,476
PICHINCHA	101,956	40,293
TUNGURAHUA	43,446	19,124
ZAMORA CHINCHIPE	7,642	6,177
TOTAL	1,127,745	556,404

FUENTE: II Censo Agropecuario 1974. Resultados Provisionales

CENSO GANADERO - EL SALVADOR

DEPARTAMENTO	BOVINOS	OVINOS	CAPRINOS
AHUACHAPAN	37,626		
CABAÑAS	51,685		
CHALATENANGO	105,144		
CUSCATLAN	39,489		
LA LIBERTAD	58,393		
LA PAZ	65,333		
LA UNION	113,330		
MORAZAN	78,364		
SAN MIGUEL	128,254		
SAN SALVADOR	25,287		
SANTA ANA	57,664		
SAN VICENTE	63,914		
SONSONATE	69,879		
USULUTAN	66,412		
TOTAL	960,774		

FUENTE: III Censo Nacional Agropecuario 1971.

CENSO GANADERO - EL SALVADOR

DEPARTAMENTO	PORCINOS	EQUINOS
AHUACHAPAN	185	6,531
CABAÑAS	385	7,612
CHALATENANGO	899	13,073
CUSCATLAN	346	4,425
LA LIBERTAD	654	8,070
LA PAZ	996	5,370
LA UNION	1,133	10,256
MORAZAN	695	6,676
SAN MIGUEL	1,606	7,735
SAN SALVADOR	480	2,048
SANTA ANA	714	10,867
SAN VICENTE	473	7,005
SONSONATE	415	8,379
USULUTAN	2,179	6,627
TOTAL	11,160	104,674

FUENTE: III Censo Nacional Agropecuario, 1971.

CENSO GANADERO - ESTADOS UNIDOS

ESTADO	BOVINOS	OVINOS	CAPRINOS *
ALABAMA	2,360,000	3,600	1,736
ALASKA	7,000	5,500	22
ARIZONA	1,065,000	464,000	99
ARKANSAS	2,500,000	5,100	1,952
CALIFORNIA	4,750,000	1,038,000	9,246
COLORADO	3,030,000	830,000	1,302
CONNECTICUT	110,000	5,100	160
DELAWARE	32,000	1,900	67
FLORIDA	2,800,000	4,500	1,110
GEORGIA	2,300,000	3,600	3,765
HAWAII	240,000	-	167
IDAHO	1,900,000	503,000	499
ILLINOIS	3,200,000	180,000	1,081
INDIANA	2,125,000	187,000	957
IOWA	7,650,000	388,000	825
KANSAS	6,400,000	173,000	611
KENTUCKY	3,300,000	30,000	1,391
LOUISIANA	1,700,000	13,000	726
MAINE	133,000	12,000	60
MARYLAND	452,000	18,000	358
MASSACHUSETTS	104,000	7,500	267
MICHIGAN	1,650,000	149,000	775
MINNESOTA	4,000,000	275,000	458
MISSISSIPPI	2,670,000	5,400	1,697
MISSOURI	6,400,000	142,000	3,721
MONTANA	2,980,000	620,000	61

CENSO GANADERO - ESTADOS UNIDOS

ESTADO	BOVINOS	OVINOS	CAPRINOS *
NEBRASKA	6,450,000	210,000	447
NEVADA	600,000	133,000	372
NEW HAMPSHIRE	72,000	5,600	75
NEW JERSEY	114,000	8,300	543
NEW MEXICO	1,500,000	524,000	1,938
NEW YORK	1,860,000	69,000	936
NORTH CAROLINA	1,080,000	9,000	883
NORTH DAKOTA	2,235,000	262,000	86
OHIO	2,250,000	445,000	930
OKLAHOMA	5,650,000	72,000	1,213
OREGON	1,490,000	390,000	1,477
PENNSYLVANIA	1,960,000	100,000	1,076
RHODE ISLAND	10,000	2,600	-
SOUTH CAROLINA	750,000	1,300	453
SOUTH DAKOTA	3,650,000	659,000	1,863
TENNESSEE	3,000,000	16,000	6,932
TEXAS	15,800,000	2,520,000	962,699
UTAH	880,000	580,000	153
VERMONT	342,000	6,200	79
VIRGINIA	1,620,000	164,000	980
WASHINGTON	1,350,000	74,000	1,026
WEST VIRGINIA	549,000	120,000	685
WISCONSIN	4,275,000	80,000	1,385
WYOMING	1,550,000	1,195,000	137
TOTAL	122,896,000	12,710,000	1,019,481

FUENTE: United States Department of Agriculture
Agriculture Statistics 1977

* U.S. Department of Commerce. Bureau of the Census.
1974 Census of Agriculture.

CENSO GANADERO - ESTADOS UNIDOS

ESTADO	PORCINOS	EQUINOS
ALABAMA	750,000	129,000
ALASKA	800	3,000
ARIZONA	99,000	101,000
ARKANSAS	395,000	128,000
CALIFORNIA	133,000	406,000
COLORADO	280,000	125,000
CONNECTICUT	9,000	30,000
DELAWARE	53,000	8,000
FLORIDA	320,000	145,000
GEORGIA	160,000	107,000
HAWAII	60,000	10,000
IDAHO	72,000	125,000
ILLINOIS	6,400,000	300,000
INDIANA	4,000,000	75,000
IOWA	14,200,000	120,000
KANSAS	1,850,000	150,000
KENTUCKY	1,080,000	170,000
LOUISIANA	175,000	150,000
MAINE	7,500	25,000
MARYLAND	240,000	48,000
MASSACHUSETTS	54,000	21,000
MICHIGAN	720,000	169,000
MINNESOTA	3,600,000	157,000
MISSISSIPPI	405,000	149,000
MISSOURI	3,750,000	188,000
MONTANA	181,000	250,000

CENSO GANADERO - ESTADOS UNIDOS

ESTADO	PORCINOS	EQUINOS
NEBRASKA	3,100,000	78,000
NEVADA	8,000	50,000
NEW HAMPSHIRE	8,500	20,000
NEW JERSEY	85,000	21,000
NEW MEXICO	73,000	90,000
NEW YORK	101,000	250,000
NORTH CAROLINA	1,940,000	129,000
NORTH DAKOTA	330,000	35,000
OHIO	1,900,000	205,000
OKLAHOMA	330,000	230,000
OREGON	92,000	125,000
PENNSYLVANIA	700,000	98,000
RHODE ISLAND	8,000	9,000
SOUTH CAROLINA	510,000	70,000
SOUTH DAKOTA	1,500,000	85,000
TENNESSEE	1,010,000	180,000
TEXAS	850,000	625,000
UTAH	48,000	95,000
VERMONT	5,000	12,000
VIRGINIA	650,000	118,000
WASHINGTON	65,000	125,000
WEST VIRGINIA	55,000	40,000
WISCONSIN	1,250,000	110,000
WYOMING	32,000	48,000
TOTAL	55,084,800	6,137,000

CENSO GANADERO - GRENADA

PARROQUIA	BOVINOS	OVINOS	CAPRINOS
TOTAL	6,000	9,000	7,500

FUENTE: Ministry of Agriculture, Forestry and Fisheries 1978.

GRENADA Censo ganadero

CENSO GANADERO - GRENADA

PARROQUIA	PORCINOS	EQUINOS
TOTAL	10,000	

FUENTE: Ministry of Agriculture, Forestry and Fisheries 1978.

CENSO GANADERO - GUATEMALA

DEPARTAMENTO	BOVINOS *	OVINOS *	CAPRINOS *
ALTA VERAPAZ	51,612	277	366
BAJA VERAPAZ	30,730		894
CHIMALTENANGO		5,675	2,895
CHIQUMULA	99,904		538
ESCUINTLA	467,036	5	375
GUATEMALA	31,509	12	523
HUEHUETENANGO	44,009	151,347	30,224
IZABAL	94,987		462
JALAPA	34,736		556
JUTIAPA	146,948	136	929
PETEN			8
PROGRESO	35,026		604
QUETZALTENANGO	45,153	54,538	4,107
QUICHE	25,910	185,929	12,515
RETALHULEU	128,910	155	159
SACATEPEQUEZ	13,991	19	17
SAN MARCOS	68,821	157,504	19,540
SANTA ROSA	145,180		408
SOLOLA	15,889	21,057	4,811
SUCHITEPEQUEZ	168,178	232	123
TOTONICAPAN		90,878	2,679
ZACAPA	64,402		753
TOTAL	1,712,851	667,766	53,576

FUENTE: * Encuesta Estadística 1975. Dirección General de Estadística.

* Censo 1964

CENSO GANADERO - GUATEMALA

DEPARTAMENTO	PORCINOS	EQUINOS
ALTA VERAPAZ	53,419	1,945
BAJA VERAPAZ	15,294	3,564
CHIMALTENANGO	19,610	5,918
CHIQUMULA	34,762	4,329
ESCUINTLA	33,153	2,243
GUATEMALA	26,638	5,074
HUEHUETENANGO	73,553	42,975
IZABAL	14,182	2,906
JALAPA	15,356	3,259
JUTIAPA	54,314	10,707
PETEN		960
PROGRESO	17,299	3,964
QUETZALTENANGO	27,178	7,812
QUICHE	62,209	16,432
RETALHULEU	13,038	475
SACATEPEQUEZ	4,310	477
SAN MARCOS	62,231	27,173
SANTA ROSA	71,735	8,313
SOLOLA	6,235	6,420
SUCHITEPEQUEZ	16,268	704
TOTONICAPAN	23,127	5,597
ZACAPA	15,120	4,432
TOTAL	659,031	165,744

CENSO GANADERO - GUYANA

PROVINCIA	BOVINOS	OVINOS	CAPRINOS
TOTAL	200,000	62,000	20,000

CENSO GANADERO - GUYANA

PROVINCIA	PORCINOS	EQUINOS
TOTAL	80,000	22,500

CENSO GANADERO HAITI

PAIS	BOVINOS	OVINOS	CAPRINOS
TOTAL	700,000	50,000	900,000

Fuente: Censo de 1950

CENSO GANADERO HAITI

PAIS	PORCINOS	EQUINOS
ATLANTIDA	75,333	35
BAHIA DE LA GUAJA	171,316	15
CHAMA	97,374	75
CHAMORRUELO	77,371	60
CHILE	16,330	15
CHITTO	172,387	75
EL TRIUNFO	134,402	15
TOTAL	1,100,000	450,000

FUENTE: Censo de 1950

CENSO GANADERO - HONDURAS

DEPARTAMENTO	BOVINOS	OVINOS	CAPRINOS
ATLANTIDA	78,360	295	815
CHOLUTECA	171,316	15	618
COLON	57,929	64	293
COMAYAGUA	77,517	60	793
COPAN	98,320	351	203
CORTES	172,287	290	798
EL PARAISO	142,907	32	230
FRANCISCO MORAZAN	128,474	175	845
GRACIAS A DIOS	9,792	2	845
INTUBUCA	50,653	63	196
ISLAS DE LA BAHIA	-	-	7
LA PAZ	43,278	26	760
LEMPIRA	81,225	157	867
OCOTEPEQUE	42,699	336	132
OLANCHO	190,319	217	1,718
SANTA BARBARA	140,001	101	838
VALLE	62,470	56	5,023
YORO	137,940	623	1,957
TOTAL	1,685,487	2,863	16,938

FUENTE: * Programa de Sanidad Animal 1977
Censos y Estadística 1974.

CENSO GANADERO - HONDURAS

DEPARTAMENTO	PORCINOS	EQUINOS
ATLANTIDA	23,654	9,934
CHOLUTECA	43,392	21,959
COLON	23,626	6,165
COMAYAGUA	20,884	15,470
COPAN	24,572	17,235
CORTES	21,841	13,422
EL PARAISO	31,025	23,793
FRANCISCO MORAZAN	41,191	23,507
GRACIAS A DIOS	6,178	1,635
INTUBUCA	20,920	7,646
ISLAS DE LA BAHIA	949	270
LA PAZ	14,053	8,612
LEMPIRA	46,440	14,665
OCOTEPEQUE	7,030	5,529
OLANCHO	69,995	45,235
SANTA BARBARA	32,596	21,626
VALLE	37,936	5,592
YORO	44,842	22,458
TOTAL	511,124	264,753

FUENTE: Censos y Estadística. 1974

CENSO GANADERO - INDIAS OCCIDENTALES

PAISES	BOVINOS	OVINOS	CAPRINOS
ANTIGUA	8,000	10,000	15,000
BERMUDA	185	-	-
DOMINICA	3,146	2,946	5,060
ISLAS CAIMAN	2,900	-	200
I. TURCAS Y CAICOS	150	-	-
I. VIRGENES BRIT.	3,500	4,250	1,900
MONSERRAT	3,000	4,000	25,000
SAN CRISTOBAL - NIEVES - ANGUILA	5,660	13,150	8,746
SANTA LUCIA	13,800	7,000	6,000
SAN VICENTE	-	-	-
TOTAL	66,441	41,346	61,906

CENSO GANADERO - INDIAS OCCIDENTALES

PAIS	PORCINOS	EQUINOS
ANTIGUA	3,500	
BERMUDA		
DOMINICA	3,146	
ISLAS CAIMAN	1,000	
I.TURCAS Y CAICOS	120	80
I.VIRGENES BRIT.	958	218
MONSERRAT	25,000	
SAN CRISTOBAL -		
NIEVES - ANGUILA	7,483	
SANTA LUCIA	14,000	
SAN VICENTE		
TOTAL	55,207	298

CENSO GANADERO - JAMAICA

PARROQUIA	BOVINOS	OVINOS	CAPRINOS
CLARENDON	18,955		
HANOVER	13,478		
MANCHESTER	20,347		
PORTLAND	6,552		
ST. ANDREW	4,379		
ST. ANN	35,545		
ST. CATHERINE	19,579		
ST. ELIZABETH	34,653		
ST. JAMES	9,821		
ST. MARY	11,498		
ST. THOMAS	9,931		
TRELAWNY	17,850		
WESTMORELAND	76,122		
TOTAL	278,710	9,000	263,000

FUENTE: Ministerio de Agricultura 1968-1969.

CENSO GANADERO - JAMAICA

PARROQUIA	PORCINOS	EQUINOS
CLARENDON	7,858	
HANOVER	2,991	
MANCHESTER	3,222	
PORTLAND	2,310	
ST. ANDREW	5,578	
ST. ANN	11,579	
ST. CATHERINE	6,907	
ST. ELIZABETH	1,402	
ST. JAMES	1,558	
ST. MARY	6,649	
ST. THOMAS	6,425	
TRELAWNY	3,519	
WESTMORELAND	6,015	
TOTAL	66,013	—

FUENTE: Ministerio de Agricultura 1975.

CENSO GANADERO - MEXICO

ESTADO	BOVINOS	OVINOS	CAPRINOS
AGUASCALIENTES	121,543	35,141	25,923
BAJA CALIFORNIA N.	130,020	19,658	945
BAJA CALIFORNIA S.	224,533	4,380	82,635
CAMPECHE	132,627	586	862
COAHUILA	805,153	203,401	1,343,078
COLIMA	123,661	318	7,122
CHIAPAS	1,071,480	163,729	33,417
CHIHUAHUA	2,146,344	98,748	400,435
DISTRITO FEDERAL	128,269	33,489	7,059
DURANGO	1,272,973	298,117	465,555
GUANAJUATO	538,001	164,543	497,077
GUERRERO	907,324	25,450	267,939
HIDALGO	491,066	591,332	243,028
JALISCO	2,009,388	52,758	196,291
MEXICO	691,298	714,586	126,162
MICHOACAN	961,605	98,519	111,467
MORELOS	132,159	13,260	21,608
NAYARIT	414,557	20,464	25,183
NUEVO LEON	687,524	168,129	1,341,703
OAXACA	738,299	317,296	451,184
PUEBLA	605,388	413,643	352,744
QUERETARO	199,317	95,887	136,084
QUINTANA	11,361	634	368
SAN LUIS POTOSI	768,859	562,351	870,696
SINALOA	926,572	12,925	57,219
SONORA	2,070,126	18,035	61,566
TABASCO	774,390	532	1,064
TAMAULIPAS	1,061,891	74,832	450,762
TLAXCALA	66,787	95,776	33,350
VERACRUZ	4,126,535	150,350	125,513
YUCATAN	521,410	3,414	4,411
ZACATECAS	263,296	806,787	694,361
31 states + D F			
TOTAL	25,123,756	5,320,070	8,487,822

FUENTE: Dirección General de Estadística. Censo 1970

CENSO GANADERO - MEXICO

ESTADO	PORCINOS	EQUINOS
AGUASCALIENTES	55,949	68,605
BAJA CALIFORNIA N.	55,704	24,145
BAJA CALIFORNIA S.	329,874	52,196
CAMPECHE	78,923	63,750
COAHUILA	170,850	272,219
COLIMA	76,949	51,235
CHIAPAS	701,909	349,709
CHIHUAHUA	388,882	503,359
DISTRITO FEDERAL	144,408	35,748
DURANGO	393,412	665,292
GUANAJUATO	688,599	329,464
GUERRERO	636,559	515,084
HIDALGO	463,199	326,703
JALISCO	904,987	792,472
MEXICO	588,723	543,436
MICHOACAN	756,313	501,253
MORELOS	125,665	130,041
NAYARIT	331,463	329,308
NUEVO LEON	192,816	207,138
OAXACA	579,487	516,563
PUEBLA	557,086	587,669
QUERETARO	171,686	110,316
QUINTANA ROO	66,487	9,904
SAN LUIS POTOSI	428,450	481,028
SINALOA	396,889	426,099
SONORA	177,326	403,306
TABASCO	230,125	139,076
TAMAULIPAS	266,418	290,353
TLAXCALA	122,071	141,562
VERACRUZ	1,050,242	1,039,842
YUCATAN	211,424	112,016
ZACATECAS	378,808	701,808
TOTAL	11,720,843	10,720,699

FUENTE: Dirección General de Estadística Censo 1970

CENSO GANADERO - NICARAGUA

REGION	BOVINOS	OVINOS	CAPRINOS
ATLANTICO NORTE	2,326		
ATLANTICO SUR			
INTERIOR CENTRAL	539,448		
INTERIOR NORTE	203,679		
INTERIOR SUR	1,138,950		
PACIFICO CENTRAL	370,548		
PACIFICO NORTE	419,912		
PACIFICO SUR	189,335		
TOTAL	2,864,198		

FUENTE: Dirección de Planificación Sectorial. Censo Nacional Agropecuario 1971

CENSO GANADERO - NICARAGUA

REGION	PORCINOS	EQUINOS
ATLANTICO NORTE	7,844	729
ATLANTICO SUR		
INTERIOR CENTRAL	61,729	34,568
INTERIOR NORTE	16,851	16,309
INTERIOR SUR	54,558	48,744
PACIFICO CENTRAL	20,249	18,758
PACIFICO NORTE	39,090	20,100
PACIFICO SUR	6,738	10,238
TOTAL	207,059	149,446

FUENTE: Dirección de Planificación Sectorial. Censo Nacional Agropecuario 1971.

CENSO GANADERO - PANAMA

PROVINCIA	BOVINOS	OVINOS	CAPRINOS
BOCAS DEL TORO	9,250		
COCLE	86,300		
COLON	32,660		
CHIRIQUI	392,400 ✓		
DARIEN	8,550		
HERRERA	130,200		
LOS SANTOS	281,900 ✓		
PANAMA	166,300		
VERAGUAS	250,800		
TOTAL	1,358,360		

FUENTE: 1978 Ministerio de Desarrollo Agropecuario.

CENSO GANADERO - PANAMA

PROVINCIA	PORCINOS	EQUINOS
BOCAS DEL TORO	1,900	838
COCLE	8,500	17,468
COLON	11,900	2,997
CHIRIQUI	35,200	40,492
DARIEN	1,700	558
HERRERA	20,600	13,889
LOS SANTOS	23,700	22,111
PANAMA	37,000	15,814
VERAGUAS	38,500	32,738
TOTAL	179,000	130,019

FUENTE: 1978 Ministerio de Desarrollo Agropecuario.

CENSO GANADERO - PARAGUAY

DEPARTAMENTO	BOVINOS	OVINOS	CAPRINOS
ALTO PARANA	36,100	500	1,500
AMAMBAY	101,800	8,300	2,000
CAAGUAZU	190,900	12,800	1,600
CAAZAPA	186,600	21,100	3,500
CANENDIYU	29,100	200	
CENTRAL	91,800	1,800	600
CONCEPCION	294,100	26,500	2,200
CORDILLERA	222,900	11,900	1,400
GUAIRA	169,000	12,600	2,400
ITAPUA	261,200	20,700	2,300
MISIONES	375,600	22,900	2,800
ÑEEMBUCU	488,500	59,600	11,900
PARAGUARI	476,200	44,200	3,800
REGION OCCIDENTAL	2,293,200	110,100	70,100
SAN PEDRO	320,200	17,200	1,200
TOTAL	5,537,200	370,400	108,300

FUENTE: Encuesta Agropecuaria por Muestreo 1976.

CENSO GANADERO - PARAGUAY

DEPARTAMENTO	PORCINOS	EQUINOS
ALTO PARANA	75,700	1,700
AMAMBAY	27,200	6,800
CAAGUAZU	127,600	10,300
CAAZAPA	80,100	15,300
CANENDIYU	6,000	300
CENTRAL	29,700	3,000
CONCEPCION	43,200	21,100
CORDILLERA	79,400	13,600
GUAIRA	99,800	11,600
ITAPUA	183,300	30,500
MISIONES	46,700	21,400
NEEMBUCU	58,000	49,900
PARAGUARI	118,400	31,800
REGION OCCIDENTAL	23,700	84,800
SAN PEDRO	103,200	22,800
TOTAL	1,102,000	325,400

FUENTE: Encuesta Agropecuaria por Muestreo 1976.

CENSO GANADERO - PERU

DEPARTAMENTO	BOVINOS	OVINOS	CAPRINOS
AMAZONAS	122,700	44,500	6,820
ANCASH	225,500	767,000	118,119
APURIMAC	391,000	540,000	121,200
AREQUIPA	193,500	249,000	53,224
AYACUCHO	469,000		334,600
CAJAMARCA	500,000	501,600	125,705
CUZCO	372,000	1,560,000	28,472
HUANCAVELICA	158,000	1,100,000	192,400
HUANUCO	149,000	793,000	46,305
ICA	37,300	39,000	103,940
JUNIN	220,000	1,756,500	20,600
LA LIBERTAD	182,500	429,000	116,283
LAMBAYEQUE	86,700	58,500	62,750
LIMA	252,500	458,000	313,180
LORETO	70,000	1,000	315
MADRE DE DIOS	10,000	900	220
MOQUEGUA	26,500	42,600	8,875
PASCO	73,500	580,000	14,790
PIURA	151,500	176,000	548,271
PUNO	430,500	4,970,000	1,230
SAN MARTIN	86,500	4,300	1,100
TACNA	31,400	43,700	13,820
TUMBES	12,200	3,000	43,935
TOTAL	4,251,800	14,117,600	2,276,154

FUENTE: Ministerio de Agricultura y Alimentación.

Oficina de Información y Estadística 1978.

CENSO GANADERO - PERU

DEPARTAMENTO	PORCINOS	EQUINOS
AMAZONAS	44,000	27,500
ANCASH	174,000	104,000
APURIMAC	145,000	175,000
AREQUIPA	53,100	41,500
AYACUCHO	137,000	193,000
CAJAMARCA	195,100	114,600
CUZCO	98,500	100,500
HUANCAVELICA	73,900	65,000
HUANUCO	141,800	57,300
ICA	35,800	12,600
JUNIN	93,900	74,000
LA LIEBERTAD	123,500	95,000
LAMBAYEQUE	66,800	27,700
LIMA	325,000	36,700
LORETO	53,200	3,000
MADRE DE DIOS	4,800	800
MOQUEGUA	9,300	6,300
PASCO	41,000	28,200
PIURA	100,000	53,600
PUNO	104,200	79,800
SAN MARTIN	101,500	19,300
TACNA	11,200	5,150
TUMBES	9,000	6,000
TOTAL	2,141,600	1,326,350

FUENTE: Ministerio de Agricultura y Alimentación

Oficina Información y Estadística 1978

CENSO GANADERO - REPUBLICA DOMINICANA

PROVINCIA	BOVINOS	OVINOS	CAPRINOS
AZUA	23,440	1,319	21,370
BAHORUCO	8,136	364	7,003
BARAHONA	26,290	136	4,330
DAJABON	32,817	1,042	5,862
DISTRITO NACIONAL	63,105	720	6,346
DUARTE	106,264	266	4,992
EL SEYBO	176,734	1,358	10,731
ESPAILLAT	48,985	1,136	4,656
INDEPENDENCIA	9,785	146	5,358
LA ALTAGRACIA	143,242	410	6,312
LA ESTRELLETA	13,674	413	11,954
LA ROMANA	27,535	49	3,074
LA VEGA	105,510	1,078	8,581
MA. TRINIDAD SANCHEZ	73,232	544	2,802
MONTE CRISTY	36,637	1,807	29,806
PEDERNALES	7,997	208	1,441
PERAVIA	38,322	2,199	24,535
PUERTO PLATA	130,837	1,308	6,180
SALCEDO	12,581	102	2,877
SAMANA	16,067	132	4,348
SAN CRISTOBAL	88,848	754	19,068
SAN JUAN	69,985	5,896	30,300
SAN P. DE MACORIS	36,487	275	2,666
SANCHEZ RAMIRES	46,676	262	5,334
SANTIAGO	76,677	1,692	15,541
SANTIAGO RODRIGUEZ	25,781	1,192	5,719
VALVERDE	26,323	757	8,572
TOTAL	1,471,967	25,565	259,758

FUENTE: Censo Agropecuario 1971

CENSO GANADERO - REPUBLICA DOMINICANA

PROVINCIA	PORCINOS	EQUINOS
AZUA	22,508	16,950
BAHORUCO	8,449	6,563
BARAHONA	7,917	8,934
DAJABON	11,930	11,736
DISTRITO NACIONAL	20,424	10,373
DUARTE	57,124	17,835
EL SEYBO	51,091	31,079
ESPAILLAT	51,183	10,240
INDEPENDENCIA	5,138	4,988
LA ALTAGRACIA	34,585	21,726
LA ESTRELLETA	19,579	11,182
LA ROMANA	1,156	3,426
LA VEGA	61,712	24,637
MA. TRINIDAD SANCHEZ	29,654	12,502
MONTE CRISTY	12,698	10,807
PEDERNALES	3,399	1,720
PERAVIA	20,710	21,571
PUERTO PLATA	66,795	24,993
SALCEDO	31,077	6,012
SAMANA	9,177	4,394
SAN CRISTOBAL	78,824	39,928
SAN JUAN	52,219	33,867
SAN P. DE MACORIS	7,510	8,828
SANCHEZ RAMIRES	25,941	14,189
SANTIAGO	14,509	34,207
SANTIAGO RODRIGUEZ	14,991	12,623
VALVERDE	9,918	6,835
TOTAL	730,218	412,145

FUENTE: Censo Agropecuario 1971

CENSO GANADERO - SURINAME

PROVINCIA	BOVINOS	OVINOS	CAPRINOS
TOTAL	26,000	—	—

FUENTE: Ministerio de Agricultura 1978.

CENSO GANADERO - SURINAME

PROVINCIA	PORCINOS	EQUINOS
TOTAL	_____	_____

CENSO GANADERO TRINIDAD Y TABAGO

PAIS	BOVINOS	OVINOS	CAPRINOS
TOTAL	75,000	12,000	35,000

CENSO GANADERO TRINIDAD Y TABAGO

PAIS	PORCINOS	EQUINOS
TOTAL	48,000	13,455

CENSO GANADERO - URUGUAY

DEPARTAMENTO	BOVINOS	OVINOS	CAPRINOS
ARTIGAS	683,556	1,415,231	
CANELONES	213,937	38,907	
CERRO LARGO	911,135	1,125,541	
COLONIA	302,498	201,624	
DURAZNO	739,254	1,447,073	
FLORES	324,081	542,875	
FLORIDA	699,325	893,117	
LAVALLEJA	639,983	1,104,086	
MALDONADO	234,741	561,109	
MONTEVIDEO	5,679	213	
PAYSANDU	759,849	1,239,699	
RIO NEGRO	530,287	619,096	
RIVERA	669,802	688,630	
ROCHA	631,933	862,966	
SALTO	729,654	1,755,536	
SAN JOSE	275,180	139,808	
SORIANO	482,481	588,747	
TACUAREMBO	969,862	1,480,835	
TREINTA Y TRES	579,773	942,077	
T O T A L	10,383,010	15,647,170	

CENSO GANADERO - URUGUAY

DEPARTAMENTO	PORCINOS	EQUINOS
ARTIGAS	2,822	35,570
CANELONES	42,693	11,420
CERRO LARGO	6,501	45,184
COLONIA	22,132	13,589
DURAZNO	6,352	27,305
FLORES	5,567	16,407
FLORIDA	14,264	26,592
LAVALLEJA	21,839	46,997
MALDONADO	7,196	11,461
MONTEVIDEO	2,462	544
PAYSANDU	8,745	39,368
RIO NEGRO	7,621	23,558
RIVERA	5,236	33,216
ROCHA	26,716	25,162
SALTO	4,733	42,010
SAN JOSE	15,191	14,534
SORIANO	13,823	23,483
TACUAREMBO	7,648	46,979
TREINTA Y TRES	4,724	24,569
TOTAL	226,265	507,948

CENSO GANADERO - VENEZUELA

ESTADO	BOVINOS	OVINOS	CAPRINOS
ANZOATEGUI	407,036	578	33,900
APURE	1,446,206	5	1,136
ARAGUA	86,135	535	2,550
BARINAS	803,269	18	3,502
BOLIVAR	498,384	91	2,014
CARABOBO	142,491	59	1,362
COJEDES	345,359	117	3,568
DISTRITO FEDERAL	273	14	508
FALCON	364,428	10,439	558,666
GUARICO	1,043,359	134	10,021
LARA	298,927	34,457	363,692
MERIDA	327,294	7,865	13,888
MIRANDA	70,316	15	3,874
MONAGAS	297,610	679	11,125
NUEVA ESPARTA	-	57	-
PORTUGUESA	287,292	332	15,434
SUCRE	44,838	321	44,550
TACHIRA	405,998	2,293	2,612
TRUJILLO	281,079	3,031	21,405
YARACUY	101,003	468	9,062
ZULIA	2,101,373	28,527	158,879
T. F. AMACURO	56,773	1	544
T. F. AMAZONAS	-	-	8
TOTAL	9,409,443	90,035	1,262,300

FUENTE: *Anuario Estadístico Agropecuario 1975.

CENSO GANADERO - VENEZUELA

ESTADO	PORCINOS	EQUINOS
ANZOATEGUI	80,679	91,699
APURE	79,367	102,335
ARAGUA	15,641	16,232
BARINAS	153,913	48,644
BOLIVAR	36,201	54,364
CARABOBO	19,640	12,093
COJEDES	62,869	21,829
DISTRITO FEDERAL	536	2,913
FALCON	39,505	42,599
GUARICO	74,438	135,267
LARA	48,574	52,268
MERIDA	38,961	36,312
MIRANDA	14,211	22,941
MONAGAS	46,804	40,937
NUEVA ESPARTA	-	2,164
PORTUGUESA	84,636	21,872
SUCRE	61,565	42,413
TACHIRA	47,343	32,727
TRUJULLO	43,639	30,225
YARACUY	37,392	23,269
ZULIA	125,168	46,104
T.F. AMACURO	6,133	3,336
T.F. AMAZONAS		156
TOTAL	1,117,215	882,699

Como se ha observado, en esta primera etapa del presente estudio de la situación de la salud animal en los países de América se ha incluido únicamente la información general básica sobre la población de animales en los diferentes países.

En la segunda etapa de este estudio habrá de ser presentado un análisis más exhaustivo de la infraestructura pecuaria de cada país en el que se incluya información sobre la distribución de población ganadera de las diferentes especies, desde el nivel de división política primaria como condado, municipio, cantón u otro similar.

Igualmente habrán de incluirse cifras sobre la discriminación etárea de las diferentes especies animales con el análisis de la composición de los diferentes grupos ganaderos.

El análisis referente a grupos de edades de las diferentes especies animales habrá de comprender un capítulo específico sobre el censo de reproductores, así como cifras de porcentajes de fertilidad en las diferentes zonas con un estudio comparativo entre los países del hemisferio. Se incluirá asimismo la información pormenorizada disponible sobre las diferentes especies con el análisis de censos y distribución geográfica.

Con el objeto de realizar comparaciones adecuadas de la carga y potencial ganadero en las diferentes zonas de cada país se mostrará información sobre índices de agostadero.

Por último se incluirán asimismo datos sobre tasas de mortalidad, de extracción y de crecimiento del hato, así como cifras de rendimiento de carne.

